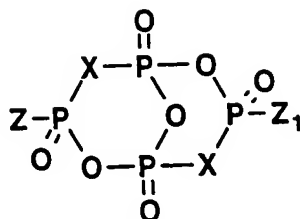


WHAT IS CLAIMED IS:

1. A compound having the following structure:



5 wherein

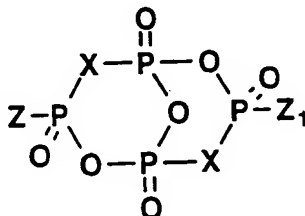
Z and Z₁ are the same or different and are alkyl, aralkyl, aryl, aminoalkyl, alkyloxy, aralkyloxy, alkylamino, aralkylamino, arylamino, alkylmercaptan, aralkylmercaptan, arylmercaptan, carbohydrate, nucleoside, steroid, or substituted glyceride; and
10 X is methylene (-CH₂-), mono- or di-halo methylene, or -NR-, where R is H or alkyl.

15 2. The compound of claim 1, wherein Z and Z₁ are carbohydrates and X is methylene or difluoromethylene.

3. The compound of claim 1, wherein Z and Z₁ are nucleosides and X is methylene or difluoromethylene.

20

4. A method for the preparation of a compound having the following structure:



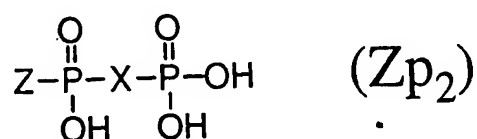
25 wherein

Z and Z₁ are the same or different and are alkyl, aralkyl, aryl, aminoalkyl, alkyloxy, aralkyloxy, alkylamino, aralkylamino, arylamino, alkylmercaptan, aralkylmercaptan, arylmercaptan, carbohydrate, nucleoside, steroid, or substituted glyceride; and

X is methylene (-CH₂-), mono- or di-halo methylene, or -NR-, where R is H or alkyl;

which method comprises reacting a compound having the following structure:

10



wherein Z and X are as described, with a dehydrating agent.

15 * 5. The method of claim 4, wherein the dehydrating agent is a carbodiimide.

* 6. The method of claim 5, wherein the dehydrating agent is dicyclohexylcarbodiimide or diisopropylcarbodiimide.

* 7. The method of claim 4, wherein the starting material which is reacted with the dehydrating agent is selected from the group consisting of:

25 2',3'-O-isopropylideneadenosin-5'-ylphosphonomethylenephosphonate,

2',3'-O-isopropylideneinosin-5'-ylphosphonomethylenephosphonate,

2',3'-O-isopropylideneguanosin-5'-ylphosphonomethylenephosphonate,

30 2',3'-O-isopropylideneuridin-5'-ylphosphonomethylenephosphonate,

2',3'-O-isopropylidenecytidine-5'-ylphosphono-

methylenephosphonate,
 3'-O-(tetrahydropyranyl)thymidin-5'-ylphosphono-
 methylenephosphonate,
 2',3'-O-isopropylidenetiazofurin-5'-ylphosphono-
 5 methylenephosphonate,
 2',3'-O-isopropylidene-3-ribofuranosylbenzamid-5'-
 ylphosphono-methylenephosphonate,
 2',3'-O-isopropylidene-ψ-uridin-5'-ylphosphono-
 methylenephosphonate,
 10 2',3'-O-isopropylidene-ψ-isocytidin-5'-ylphosphono-
 methylenephosphonate,
 9-(2'-deoxy-2'-fluoro-3'-O-tetrahydropyranyl-β-D-
 arabinofuranosyl)adenine-5-ylphosphonomethylene-
 phosphonate,
 15 9-(3'-deoxy-3'-fluoro-2'-O-tetrahydropyranyl-β-D-
 xylofuranosyl)adenine-5-ylphosphonomethylenephosphonate,
 2'-deoxy-2'-fluoro-3'-O-tetrahydropyranyl-adenosin-5-
 ylphosphonomethylenephosphonate,
 3'-deoxy-3'-fluoro-2'-O-tetrahydropyranyl-adenosin-5-
 20 yl-phosphonomethylenephosphonate,
 2',3'-O-isopropylidene-9-deazaadenosin-5'-ylphosphono-
 methylenephosphonate,
 2',3'-O-isopropylidene-9-deazainosin-5'-ylphosphono-
 methylenephosphonate,
 25 2',3'-O-isopropylidene-9-deazaguanosin-5'-ylphosphono-
 methylenephosphonate,
 2',3'-O-isopropylideneadenosin-5'-ylphosphono-
 difluoromethylenephosphonate,
 2',3'-O-isopropylideneinosin-5'-ylphosphonodi-
 30 fluoromethylenephosphonate,
 2',3'-O-isopropylideneguanosin-5'-ylphosphonodi-
 fluoromethylenephosphonate,
 3'-O-(tetrahydropyranyl)thymidin-5'-ylphosphonodi-
 fluoromethylenephosphonate,

2',3'-O-isopropylidenetiazofurin-5'-ylphosphonodifluoromethylenephosphonate,

2',3'-O-isopropylidene-3-ribosylbenzamid-5'-ylphosphonodifluoromethylenephosphonate,

5 2',3'-O-isopropylidene-ψ-uridin-5'-ylphosphonodifluoromethylenephosphonate,

2',3'-O-isopropylidene-ψ-isocytidin-5'-ylphosphonodifluoromethylenephosphonate,

10 9-(2'-deoxy-2'-fluoro-3'-O-tetrahydropyranyl-β-D-arabinofuranosyl)adenine-5-ylphosphonodifluoromethylenephosphonate,

9-(3'-deoxy-3'-fluoro-2'-O-tetrahydropyranyl-β-D-xylofuranosyl)adenine-5-ylphosphonodifluoromethylenephosphonate,

15 2'-deoxy-2'-fluoro-3'-O-tetrahydropyranyl-adenosin-5-ylphosphonodifluoromethylenephosphonate,

3'-deoxy-3'-fluoro-2'-O-tetrahydropyranyl-adenosin-5-ylphosphonodifluoromethylenephosphonate,

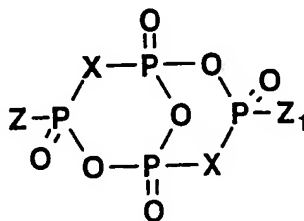
20 2',3'-O-isopropylidene-9-deazaadenosin-5'-ylphosphonodifluoromethylenephosphonate,

2'.3'-O-isopropylidene-9-deazainosin-5'-ylphosphonodifluoromethylenephosphonate, and

2',3'-O-isopropylidene-9-deazaguanosin-5'-ylphosphonodifluoromethylenephosphonate.

25

8. A method for the preparation of a compound having the following structure:

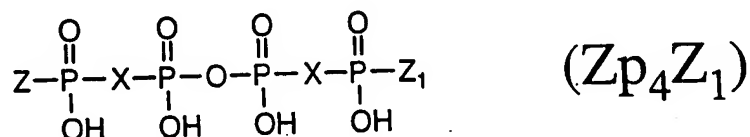


wherein

Z and Z₁ are the same or different and are alkyl,
aralkyl, aryl, aminoalkyl, alkyloxy, aralkyloxy,
alkylamino, aralkylamino, arylamino, alkylmercaptan,
5 aralkylmercaptan, arylmercaptan, carbohydrate, nucleoside,
steroid, or substituted glyceride; and

X is methylene (-CH₂-), mono- or di-halo methylene, or
-NR-, where R is H or alkyl;

which method comprises reacting a compound having the
10 following structure:



wherein Z, Z₁ and X are as defined above, with a
15 dehydrating agent.

9. The method of claim 8, wherein the starting
material which is reacted with the dehydrating agent is
selected from the group consisting of:

20 p¹, p⁴-di(adenosin-5'-yl)phosphonomethylenephosphonic
p², p³- anhydride,

p¹, p⁴-di[9-(2'-deoxy-2'-fluoro-β-D-arabono-
furanosyl)adenine-5-yl]phosphonomethylenephosphonic p², p³-
anhydride,

25 p¹, p⁴-di[9-(3'-deoxy-3'-fluoro-β-D-xylofuranosyl)-
adenine-5'-yl]phosphonomethylenephosphonic p², p³-anhydride,

p¹, p⁴-di(2'-deoxy-2'-fluoroadenosin-5-yl)phosphono-
methylenephosphonic p², p³-anhydride,

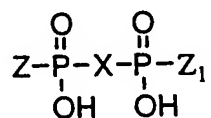
p¹, p⁴-di(3'-deoxy-3'-fluoroadenosin-5-yl)phosphono-
30 methylenephosphonic p², p³-anhydride,

p¹, p⁴-di(inosin-5'-yl)phosphonomethylenephosphonic

- p², p³- anhydride,
 p¹, p⁴-di (guanosin-5'-yl)phosphonomethylenephosphonic
 p², p³- anhydride,
 p¹, p⁴-di (uridin-5'-yl)phosphonomethylenephosphonic
 5 p², p³- anhydride,
 p¹, p⁴-di (N⁴-acetylcytidin-5'-yl)phosphonomethylene-
 phosphonic p², p³- anhydride,
 p¹, p⁴-di (thymidin-5'-yl)phosphonomethylenephosphonic
 10 p², p³- anhydride,
 p¹, p⁴-di (thiazifurin-5'-yl)phosphonomethylene-
 phosphonic p², p³- anhydride,
 p¹, p⁴-di (3-ribosylbenzamid-5'-yl)phosphonomethylene-
 phosphonic p², p³- anhydride,
 p¹, p⁴-di (ψ-uridin-5'-yl)phosphonomethylenephosphonic
 15 p², p³-anhydride,
 p¹, p⁴-di (ψ-isocytidin-5'-yl)phosphonomethylene-
 phosphonic p², p³-anhydride,
 p¹, p⁴-di (9-deazaadenosin-5'-yl)phosphonomethylene-
 phosphonic p², p³-anhydride,
 20 p¹, p⁴-di (9-deazainosin-5'-yl)phosphonomethylene-
 phosphonic p², p³-anhydride,
 p¹, p⁴-di (9-deazaguanosin-5'-yl)phosphonomethylene-
 phosphonic p², p³-anhydride,
 p¹, p⁴-di (adenosin-5'-yl)phosphonodifluoromethylene-
 25 phosphonic p², p³-anhydride,
 p¹, p⁴-di (inosin-5'-yl)phosphonodifluoromethylene-
 phosphonic p², p³-anhydride,
 p¹, p⁴-di (guanosin-5'-yl)phosphonodifluoromethylene-
 phosphonic p², p³-anhydride,
 30 p¹, p⁴-di (thymidin-5'-yl)phosphonodifluoromethylene-
 phosphonic p², p³-anhydride,
 p¹, p⁴-di (thiazofurin-5'-yl)phosphonodifluoro-

methylenephosphonic P², P³-anhydride,
 P¹, P⁴-di(3-ribosylbenzamid-5'-yl)phosphonodifluoro-
 methylenephosphonic P², P³-anhydride,
 P¹, P⁴-di(ψ-uridin-5'-yl)phosphonodifluoromethylene-
 5 phosphonic P², P³-anhydride,
 P¹, P⁴-di(ψ-isocytidin-5'-yl)phosphonodifluoro-
 methylenephosphonic P², P³-anhydride,
 P¹, P⁴-di(9-deazaadenosin-5'-yl)phosphonodifluoro-
 methylenephosphonic P², P³-anhydride,
 10 P¹, P⁴-di(9-deazainosin-5'-yl)phosphonodifluoro-
 methylenephosphonic P², P³-anhydride, and
 P¹, P⁴-di(9-deazaguanosin-5'-yl)phosphonodifluoro-
 methylenephosphonic P², P³-anhydride.

15 10. A method for the preparation of a compound having
 the following structure:



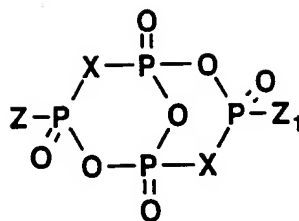
20 wherein

Z and Z₁ are the same or different and are alkyl,
 aralkyl, aryl, aminoalkyl, alkyloxy, aralkyloxy,
 alkylamino, aralkylamino, arylamino, alkylmercaptan,
 aralkylmercaptan, arylmercaptan, carbohydrate, nucleoside,
 25 steroid, or substituted glyceride; and

X is methylene (-CH₂-), mono- or di-halo methylene, or
 -NR-, where R is H or alkyl;

which method comprises reacting a compound having the
 following structure:

30



wherein Z, Z₁ and X are as defined above, with a nucleophilic agent.

- 5 11. The method of claim 10, wherein the prepared compound is selected from the group consisting of:
 - P¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(2',3'-O-isopropylidene-β-D-ribofuranosylbenzen-3-carboxamide-5'-yl)methylenebis(phosphonate),
 - 10 P¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(2',3'-O-isopropylideneadenosin-5'-yl)methylenebis(phosphonate),
 - P¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(2',3'-O-isopropylideneguanosin-5'-yl)methylenebis(phosphonate),
 - P¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(2',3'-O-isopropylideneuridin-5'-yl)methylenebis(phosphonate),
 - 15 P¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(2',3'-O-isopropylidene-N⁴-acetylcytidin-5'-yl)methylenebis(phosphonate),
 - P¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(2',3'-O-isopropylideneinosin-5'-yl)methylenebis(phosphonate),
 - 20 P¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(2',3'-O-isopropylidenetiazofurin-5'-yl)methylenebis(phosphonate),
 - P¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(2',3'-O-isopropylidene-β-D-ribofuranosylbenzene-3-carboxamide-5'-yl)methylenebis(phosphonate),
 - 25 P¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(2',3'-O-isopropylidene-ψ-uridin-5'-yl)methylenebis(phosphonate),
 - P¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-[5-

(2',3'-O-isopropylidene-β-D-ribofuranosyl)nicotinamide-5'-yl]-methylenebis(phosphonate),
 p1-(2',3'-O-Isopropylideneadenosin-5'-yl)-p2-[6-(2',3'-O-isopropylidene-β-D-ribofuranosyl)picolinamide-5'-yl]methylenebis(phosphonate),
 5 p1-(2',3'-O-Isopropylideneguanosin-5'-yl)-p2-(2',3'-O-isopropylideneguanosin-5'-yl)methylenebis(phosphonate),
 p1-(2',3'-O-Isopropylideneguanosin-5'-yl)-p2-(2',3'-O-isopropylideneuridin-5'-yl)methylenebis(phosphonate),
 10 p1-(2',3'-O-Isopropylideneguanosin-5'-yl)-p2-(2',3'-O-isopropylidene-N⁴-acetylcytidin-5'-yl)methylenebis-(phosphonate),
 p1-(2',3'-O-Isopropylideneguanosin-5'-yl)-p2-(2',3'-O-isopropylideneinosin-5'-yl)methylenebis(phosphonate),
 15 p1-(2',3'-O-Isopropylideneguanosin-5'-yl)-p2-(2',3'-O-isopropylidenetiazofurin-5'-yl)methylenebis(phosphonate),
 p1-(2',3'-O-Isopropylideneguanosin-5'-yl)-p2-(2',3'-O-isopropylidene-β-D-ribofuranosyl-benzene-3-carboxamide-5'-yl)methylenebis(phosphonate),
 20 p1-(2',3'-O-Isopropylideneguanosin-5'-yl)-p2-(2',3'-O-isopropylidene-ψ-uridin-5'-yl)methylenebis(phosphonate),
 p1-(2',3'-O-Isopropylideneguanosin-5'-yl)-p2-[5-(2',3'-O-isopropylidene-β-D-ribofuranosyl)nicotinamide-5'-yl]-methylenebis(phosphonate),
 25 p1-(2',3'-O-Isopropylideneguanosin-5'-yl)-p2-[6-(2',3'-O-isopropylidene-β-D-ribofuranosyl)picolinamide-5'-yl]-methylenebis(phosphonate),
 p1-(2',3'-O-Isopropylideneinosin-5'-yl)-p2-(2',3'-O-isopropylideneuridin-5'-yl)methylenebis(phosphonate),
 30 p1-(2',3'-O-Isopropylideneinosin-5'-yl)-p2-(2',3'-O-isopropylidene-N⁴-acetylcytidin-5'-yl)methylenebis-(phosphonate),
 p1-(2',3'-O-Isopropylideneinosin-5'-yl)-p2-(2',3'-O-isopropylideneinosin-5'-yl)methylenebis(phosphonate),

$P^1-(2',3'-O\text{-Isopropylideneinosin-5'-yl})-P^2-(2',3'-O\text{-isopropylidenetiazofurin-5'-yl})\text{methylenebis(phosphonate)},$
 $P^1-(2',3'-O\text{-Isopropylideneinosin-5'-yl})-P^2-(2',3'-O\text{-isopropylidene-}\beta\text{-D-ribofuranosylbenzene-3-carboxamide-5'-yl})\text{methylenebis(phosphonate)},$
5 $P^1-(2',3'-O\text{-Isopropylideneuridin-5'-yl})-P^2-(2',3'-O\text{-isopropylideneguanosin-5'-yl})\text{methylenebis(phosphonate)},$
 $P^1-(2',3'-O\text{-Isopropylideneuridin-5'-yl})-P^2-(2',3'-O\text{-isopropylidene-N}^4\text{-acetylcytidin-5'-yl})\text{methylenebis-}$
10 $(\text{phosphonate}),$
 $P^1-(2',3'-O\text{-Isopropylideneuridin-5'-yl})-P^2-(2',3'-O\text{-isopropylideneuridin-5'-yl})\text{methylenebis(phosphonate)},$
 $P^1-(2',3'-O\text{-Isopropylideneuridin-5'-yl})-P^2-(2',3'-O\text{-isopropylidenetiazofurin-5'-yl})\text{methylenebis(phosphonate)},$
15 $P^1-(2',3'-O\text{-Isopropylidene-N}^4\text{-acetylcytidin-5'-yl})-P^2-(2',3'-O\text{-isopropylidene-N}^4\text{-acetylcytidin-5'-yl})\text{methylenebis-}$
 $(\text{phosphonate}),$
 $P^1-(2',3'-O\text{-Isopropylidene-N}^4\text{-acetylcytidin-5'-yl})-P^2-(2',3'-O\text{-isopropylidenetiazofurin-5'-yl})\text{methylenebis-}$
20 $(\text{phosphonate}),$
 $P^1-(2',3'-O\text{-Isopropylidene-N}^4\text{-acetylcytidin-5'-yl})-P^2-(2',3'-O\text{-isopropylidene-}\beta\text{-D-ribofuranosylbenzene-3-carboxamide-5'-yl})\text{methylenebis(phosphonate)},$
 $P^1-(2',3'-O\text{-Isopropylidene-tiazofurin-5'-yl})-P^2-(2'-O\text{-acety-3'-deoxy-3'-fluoroadenosin-5'-yl})\text{methylenebis-}$
25 $(\text{phosphonate}),$
 $P^1-(2',3'-O\text{-Isopropylidene-tiazofurin-5'-yl})-P^2-(3'-O\text{-acety-2'-deoxy-2'-fluoroadenosin-5'-yl})\text{methylenebis-}$
 $(\text{phosphonate}),$
30 $P^1-(2',3'-O\text{-Isopropylidene-tiazofurin-5'-yl})-P^2-[9-(3'-O\text{-acetyl-2'-deoxy-2'-fluoro-}\beta\text{-D-arabinofuranosyl})\text{adenin-5'-yl}]\text{methylenebis(phosphonate)},$
 $P^1-(2',3'-O\text{-Isopropylidene-tiazofurin-5'-yl})-P^2-[9-$

(2'-O-acetyl-3'-deoxy-3'-fluoro-β-D-xylofuranosyl)adenin-5'-yl]methylenebis(phosphonate),

5 P¹-(2',3'-O-Isopropylidene-β-D-ribofuranosylbenzene-3-carboxamide-5'-yl)-P²-[9-(3'-O-acetyl-2'-deoxy-2'-fluoro-adenosin-5'-yl]methylenebis(phosphonate),

P¹-(2',3'-O-Isopropylidene-β-D-ribofuranosylbenzene-3-carboxamide-5'-yl)-P²-[9-(2'-O-acetyl-3'-deoxy-3'-fluoro-adenosin-5'-yl]methylenebis(phosphonate),

10 P¹-(2',3'-O-Isopropylidene-β-D-ribofuranosylbenzene-3-carboxamide-5'-yl)-P²-[9-(2'-O-acetyl-3'-deoxy-3'-fluoro-β-D-arabinofuranosyl)adenin-5'-yl]methylenebis(phosphonate),
and

15 P¹-(2',3'-O-Isopropylidene-β-D-ribofuranosylbenzene-3-carboxamide-5'-yl)-P²-[9-(2'-O-acetyl-3'-deoxy-3'-fluoro-β-D-xylofuranosyl)adenin-5'-yl]methylenebis(phosphonate).

12. The method of claim 10, wherein the prepared compound is selected from the group consisting of:

20 P¹-(adenosin-5'-yl)-P²-(β-D-ribofuranosylbenzen-3-carboxamide-5'-yl)methylenebis(phosphonate),

P¹-(Adenosin-5'-yl)-P²-(adenosin-5'-yl)methylenebis(phosphonate),

P¹-(Adenosin-5'-yl)-P²-(guanosin-5'-yl)methylenebis(phosphonate),

25 P¹-(Adenosin-5'-yl)-P²-(uridin-5'-yl)methylenebis(phosphonate),

P¹-(Adenosin-5'-yl)-P²-(cytidin-5'-yl)methylenebis(phosphonate),

30 P¹-(Adenosin-5'-yl)-P²-(inosin-5'-yl)methylenebis(phosphonate),

P¹-(Adenosin-5'-yl)-P²-(thiazofurin-5'-yl)methylenebis(phosphonate),

P^1 -(Adenosin-5'-yl)- P^2 -(β -D-ribofuranosyl-benzene-3-carboxamide-5'-yl)methylenebis(phosphonate),
 P^1 -(Adenosin-5'-yl)- P^2 -(ψ -uridin-5'-yl)methylenebis(phosphonate),
5 P^1 -(Adenosin-5'-yl)- P^2 -[5-(β -D-ribofuranosyl)-nicotinamide-5'-yl)methylenebis(phosphonate),
 P^1 -(Adenosin-5'-yl)- P^2 -[6-(β -D-ribofuranosyl)-picolinamide-5'-yl)methylenebis(phosphonate),
 P^1 -(Guanosin-5'-yl)- P^2 -(guanosin-5'-yl)methylenebis(phosphonate),
10 P^1 -(Guanosin-5'-yl)- P^2 -(uridin-5'-yl)methylenebis(phosphonate),
 P^1 -(Guanosin-5'-yl)- P^2 -(cytidin-5'-yl)methylenebis(phosphonate),
 P^1 -(Guanosin-5'-yl)- P^2 -(inosin-5'-yl)methylenebis(phosphonate),
15 P^1 -(Guanosin-5'-yl)- P^2 -(thiazofurin-5'-yl)methylenebis(phosphonate),
 P^1 -(Guanosin-5'-yl)- P^2 -(β -D-ribofuranosyl-benzene-3-carboxamide-5'-yl)methylenebis(phosphonate),
20 P^1 -(Guanosin-5'-yl)- P^2 -(ψ -uridin-5'-yl)methylenebis(phosphonate),
 P^1 -(Guanosin-5'-yl)- P^2 -[5-(β -D-ribofuranosyl)-nicotinamide-5'-yl)methylenebis(phosphonate),
25 P^1 -(Guanosin-5'-yl)- P^2 -[6-(β -D-ribofuranosyl)-picolinamide-5'-yl)methylenebis(phosphonate),
 P^1 -(Inosin-5'-yl)- P^2 -(uridin-5'-yl)methylenebis(phosphonate),
 P^1 -(Inosin-5'-yl)- P^2 -(cytidin-5'-yl)methylenebis(phosphonate),
30 P^1 -(Inosin-5'-yl)- P^2 -(inosin-5'-yl)methylenebis(phosphonate),
 P^1 -(Inosin-5'-yl)- P^2 -(thiazofurin-5'-yl)methylenebis-

(phosphonate),
 $P^1-(\text{Inosin-5'-yl})-P^2-(\beta\text{-D-ribofuranosylbenzene-3-carboxamide-5'-yl})\text{methylenebis(phosphonate)}$,
 $P^1-(\text{Uridin-5'-yl})-P^2-(\text{guanosin-5'-yl})\text{methylenebis-}$
5 (phosphonate) ,
 $P^1-(\text{Uridin-5'-yl})-P^2-(\text{cytidin-5'-yl})\text{methylenebis-}$
 (phosphonate) ,
 $P^1-(\text{Uridin-5'-yl})-P^2-(\text{uridin-5'-yl})\text{methylenebis-}$
 (phosphonate) ,
10 $P^1-(\text{Uridin-5'-yl})-P^2-(\text{thiazofurin-5'-yl})\text{methylenebis-}$
 (phosphonate) ,
 $P^1-(\text{Cytidin-5'-yl})-P^2-(\text{cytidin-5'-yl})\text{methylenebis-}$
 (phosphonate) ,
 $P^1-(\text{Cytidin-5'-yl})-P^2-(\text{thiazofurin-5'-yl})\text{methylenebis-}$
15 (phosphonate) ,
 $P^1-(\text{Cytidin-5'-yl})-P^2-(\beta\text{-D-ribofuranosylbenzene-3-carboxamide-5'-yl})\text{methylenebis(phosphonate)}$,
 $P^1-(\text{Thiazofurin-5-yl})-P^2-(3'\text{-deoxy-3'-fluoroadenosin-5'-yl})\text{methylenebis(phosphonate)}$,
20 $P^1-(\text{Thiazofurin-5-yl})-P^2-(2'\text{-deoxy-2'-fluoroadenosin-5'-yl})\text{methylenebis(phosphonate)}$,
 $P^1-(\text{Thiazofurin-5-yl})-P^2-[9-(2'\text{-deoxy-2'-fluoro-}\beta\text{-D-arabinofuranosyl})\text{adenin-5'-yl}]\text{methylenebis(phosphonate)}$,
 $P^1-(\text{Thiazofurin-5-yl})-P^2-[9-(3'\text{-deoxy-3'-fluoro-}\beta\text{-D-xylofuranosyl})\text{adenin-5'-yl}]\text{methylenebis(phosphonate)}$,
25 $P^1-(\beta\text{-D-Ribofuranosylbenzene-3-carboxamide-5'-yl})-P^2-[9-(2'\text{-deoxy-2'-fluoro-adenosin-5'-yl})\text{methylenebis-}$
 (phosphonate) ,
 $P^1-(\beta\text{-D-Ribofuranosylbenzene-3-carboxamide-5'-yl})-P^2-[9-(3'\text{-deoxy-3'-fluoroadenosin-5'-yl})\text{methylenebis-}$
30 (phosphonate) ,
 $P^1-(\beta\text{-D-Ribofuranosylbenzene-3-carboxamide-5'-yl})-P^2-$

[9-(3'-deoxy-3'-fluoro- β -D-arabinofuranosyl)adenin-5'-yl]-
methylenebis(phosphonate), and

P¹-(β -D-Ribofuranosylbenzene-3-carboxamide-5'-yl)-P²-

[9-(3'-deoxy-3'-fluoro- β -D-xylofuranosyl)adenin-5'-
5 yl]methylenebis(phosphonate).

13. The method of claim 10, wherein the prepared
compound is selected from the group consisting of:

P¹-(2',3'-O-isopropylidenetiazofurin-5'-yl)-P²-(2',3'-
10 O-isopropylideneadenosin-5'-yl)difluoromethylene-
bis(phosphonate),

P¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(2',3'-O-
isopropylideneadenosin-5'-yl)difluoromethylenebis-
(phosphonate),

15 P¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(2',3'-O-
isopropylideneguanosin-5'-yl)difluoromethylenebis-
(phosphonate),

P¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(2',3'-O-
isopropylideneuridin-5'-yl)difluoromethylenebis-
20 (phosphonate),

P¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(2',3'-O-
isopropylidene-N⁴-acetylcytidin-5'-yl)difluoromethylenebis-
(phosphonate),

P¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(2',3'-O-
25 isopropylideneinosin-5'-yl)difluoromethylenebis-
(phosphonate),

P¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(2',3'-O-
isopropylidenetiazofurin-5'-yl)difluoromethylenebis-
(phosphonate),

30 P¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(2',3'-O-
isopropylidene- β -D-ribofuranosylbenzene-3-carboxamide-5'-
yl)-difluoromethylenebis(phosphonate),

P¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(2',3'-O-

isopropylidene- ψ -uridin-5'-yl) difluoromethylenebis-
 (phosphonate),
 p¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-p²-[5-
 (2',3'-O-isopropylidene- β -D-ribofuranosyl)nicotinamide-5'-
 5 yl]difluoro-methylenebis(phosphonate),
 p¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-p²-[6-
 (2',3'-O-isopropylidene- β -D-ribofuranosyl)picolinamide-5'-
 yl]difluoro-methylenebis(phosphonate),
 p¹-(2',3'-O-Isopropylideneguanosin-5'-yl)-p²-(2',3'-O-
 10 isopropylideneguanosin-5'-yl) difluoromethylenebis-
 (phosphonate),
 p¹-(2',3'-O-Isopropylideneguanosin-5'-yl)-p²-(2',3'-O-
 isopropylideneuridin-5'-yl) difluoromethylenebis-
 (phosphonate),
 15 p¹-(2',3'-O-Isopropylideneguanosin-5'-yl)-p²-(2',3'-O-
 isopropylidene-N⁴-acetylcytidin-5'-yl) difluoromethylenebis-
 (phosphonate),
 p¹-(2',3'-O-Isopropylideneguanosin-5'-yl)-p²-(2',3'-O-
 isopropylideneinosin-5'-yl) difluoromethylenebis-
 20 (phosphonate),
 p¹-(2',3'-O-Isopropylideneguanosin-5'-yl)-p²-(2',3'-O-
 isopropylidenetiazofurin-5'-yl) difluoromethylenebis-
 (phosphonate),
 p¹-(2',3'-O-Isopropylideneguanosin-5'-yl)-p²-(2',3'-O-
 25 isopropylidene- β -D-ribofuranosyl-benzene-3-carboxamide-5'-
 yl) difluoromethylenebis(phosphonate),
 p¹-(2',3'-O-Isopropylideneguanosin-5'-yl)-p²-(2',3'-O-
 isopropylidene- ψ -uridin-5'-yl) difluoromethylenebis-
 (phosphonate),
 30 p¹-(2',3'-O-Isopropylideneguanosin-5'-yl)-p²-[5-
 (2',3'-O-isopropylidene- β -D-ribofuranosyl)nicotinamide-5'-
 yl]-difluoromethylenebis(phosphonate),
 p¹-(2',3'-O-Isopropylideneguanosin-5'-yl)-p²-[6-

(2',3'-O-isopropylidene-β-D-ribofuranosyl)picolinamide-5'-yl]-difluoromethylenebis(phosphonate),

P¹-(2',3'-O-Isopropylideneinosin-5'-yl)-P²-(2',3'-O-isopropylideneuridin-5'-yl)difluoromethylenebis-

5 (phosphonate),

P¹-(2',3'-O-Isopropylideneinosin-5'-yl)-P²-(2',3'-O-isopropylidene-N⁴-acetylcytidin-5'-yl)difluoromethylenebis-

(phosphonate),

P¹-(2',3'-O-Isopropylideneinosin-5'-yl)-P²-(2',3'-O-

10 isopropylideneinosin-5'-yl)difluoromethylenebis-

(phosphonate),

P¹-(2',3'-O-Isopropylideneinosin-5'-yl)-P²-(2',3'-O-

isopropylidenetiazofurin-5'-yl)difluoromethylenebis-

(phosphonate),

15 P¹-(2',3'-O-Isopropylideneinosin-5'-yl)-P²-(2',3'-O-

isopropylidene-β-D-ribofuranosylbenzene-3-carboxamide-5'-yl)-difluoromethylenebis(phosphonate),

P¹-(2',3'-O-Isopropylideneuridin-5'-yl)-P²-(2',3'-O-

isopropylideneguanosin-5'-yl)difluoromethylenebis-

20 (phosphonate),

P¹-(2',3'-O-Isopropylideneuridin-5'-yl)-P²-(2',3'-O-

isopropylidene-N⁴-acetylcytidin-5'-yl)difluoromethylenebis-

(phosphonate),

P¹-(2',3'-O-Isopropylideneuridin-5'-yl)-P²-(2',3'-O-

25 isopropylideneuridin-5'-yl)difluoromethylenebis-

(phosphonate),

P¹-(2',3'-O-Isopropylideneuridin-5'-yl)-P²-(2',3'-O-

isopropylidenetiazofurin-5'-yl)difluoromethylenebis-

(phosphonate),

30 P¹-(2',3'-O-Isopropylidene-N⁴-acetylcytidin-5'-yl)-P²-

(2',3'-O-isopropylidene-N⁴-aetylcytidin-5'-yl)difluoro-

methylenebis(phosphonate),

P¹-(2',3'-O-Isopropylidene-N⁴-acetylcytidin-5'-yl)-P²-

(2',3'-O-isopropylidenetiazofurin-5'-yl)difluoromethylene-

bis(phosphonate),
 $P^1-(2',3'\text{-O-Isopropylidene-N}^4\text{-acetylcytidin-5'-yl})-P^2-$
 $(2',3'\text{-O-isopropylidene-}\beta\text{-D-ribofuranosylbenzene-3-}$
 $\text{carboxamide-5'-yl})\text{difluoromethylenebis(phosphonate)},$
 5 $P^1-(2',3'\text{-O-Isopropylidene-tiazofurin-5'-yl})-P^2-(2'\text{-O-}$
 $\text{acety-3'-deoxy-3'-fluoroadenosin-5'-yl})\text{difluoromethylene-}$
 $\text{bis(phosphonate)},$
 $P^1-(2',3'\text{-O-Isopropylidene-tiazofurin-5'-yl})-P^2-(3'\text{-O-}$
 $\text{acety-2'-deoxy-2'-fluoroadenosin-5'-yl})\text{difluoromethylene-}$
 10 $\text{bis(phosphonate)},$
 $P^1-(2',3'\text{-O-Isopropylidene-tiazofurin-5'-yl})-P^2-[9-(3'\text{-}$
 $\text{O-acetyl-2'-deoxy-2'-fluoro-}\beta\text{-D-arabinofuranosyl})\text{adenin-5'-}$
 $\text{yl}]\text{difluoromethylenebis(phosphonate)},$
 $P^1-(2',3'\text{-O-Isopropylidene-tiazofurin-5'-yl})-P^2-[9-$
 15 $(2'\text{-O-acetyl-3'-deoxy-3'-fluoro-}\beta\text{-D-xylofuranosyl})\text{adenin-}$
 $5'\text{-yl}]\text{difluoromethylenebis(phosphonate)},$
 $P^1-(2',3'\text{-O-Isopropylidene-}\beta\text{-D-ribofuranosylbenzene-3-}$
 $\text{carboxamide-5'-yl})-P^2-[9-(3'\text{-O-acetyl-2'-deoxy-2'-fluoro-}$
 $\text{adenosin-5'-yl})\text{difluoromethylenebis(phosphonate)},$
 20 $P^1-(2',3'\text{-O-Isopropylidene-}\beta\text{-D-ribofuranosylbenzene-3-}$
 $\text{carboxamide-5'-yl})-P^2-[9-(2'\text{-O-acetyl-3'-deoxy-3'-fluoro-}$
 $\text{adenosin-5'-yl})\text{difluoromethylenebis(phosphonate)},$
 $P^1-(2',3'\text{-O-Isopropylidene-}\beta\text{-D-ribofuranosylbenzene-3-}$
 $\text{carboxamide-5'-yl})-P^2-[9-(2'\text{-O-acetyl-3'-deoxy-3'-fluoro-}\beta\text{-}$
 25 $\text{D-arabinofuranosyl})\text{adenin-5'-yl}]\text{difluoromethylenebis-}$
 $(\text{phosphonate}), \text{ and}$
 $P^1-(2',3'\text{-O-Isopropylidene-}\beta\text{-D-ribofuranosylbenzene-3-}$
 $\text{carboxamide-5'-yl})-P^2-[9-(2'\text{-O-acetyl-3'-deoxy-3'-fluoro-}\beta\text{-}$
 $\text{D-xylofuranosyl})\text{adenin-5'-yl}]\text{difluoromethylenebis-}$
 30 $(\text{phosphonate}).$

14. The method of claim 10, wherein the prepared compound is selected from the group consisting of:

- P^1 -(thiazofurin-5'-yl)- P^2 -(adenosin-5'-yl) difluoromethylenebis(phosphonate),
- 5 P^1 -(Adenosin-5'-yl)- P^2 -(adenosin-5'-yl) difluoromethylene-bis(phosphonate),
- P^1 -(Adenosin-5'-yl)- P^2 -(guanosin-5'-yl) difluoromethylene-bis(phosphonate),
- P^1 -(Adenosin-5'-yl)- P^2 -(uridin-5'-yl) difluoromethylene-bis(phosphonate),
- 10 P^1 -(Adenosin-5'-yl)- P^2 -(cytidin-5'-yl) difluoromethylene-bis(phosphonate),
- P^1 -(Adenosin-5'-yl)- P^2 -(inosin-5'-yl) difluoromethylene-bis(phosphonate),
- 15 P^1 -(Adenosin-5'-yl)- P^2 -(thiazofurin-5'-yl) difluoromethylenebis(phosphonate),
- P^1 -(Adenosin-5'-yl)- P^2 -(β -D-ribofuranosylbenzene-3-carboxamide-5'-yl) difluoromethylenebis(phosphonate),
- P^1 -(Adenosin-5'-yl)- P^2 -(ψ -uridin-5'-yl) difluoromethylene-bis(phosphonate),
- 20 P^1 -(Adenosin-5'-yl)- P^2 -[5-(β -D-ribofuranosyl)nicotinamide-5'-yl] difluoromethylenebis(phosphonate),
- P^1 -(Adenosin-5'-yl)- P^2 -[6-(β -D-ribofuranosyl)-picolinamide-5'-yl] difluoromethylenebis(phosphonate),
- 25 P^1 -(Guanosin-5'-yl)- P^2 -(guanosin-5'-yl) difluoromethylenebis(phosphonate),
- P^1 -(Guanosin-5'-yl)- P^2 -(uridin-5'-yl) difluoromethylenebis(phosphonate),
- P^1 -(Guanosin-5'-yl)- P^2 -(cytidin-5'-yl) difluoromethylene-bis(phosphonate),
- 30 P^1 -(Guanosin-5'-yl)- P^2 -(inosin-5'-yl) difluoromethylenebis(phosphonate),
- P^1 -(Guanosin-5'-yl)- P^2 -(thiazofurin-5'-yl) difluoromethylenebis(phosphonate),

P^1 -(Guanosin-5'-yl)- P^2 -(β -D-ribofuranosyl-benzene-3-carboxamide-5'-yl)difluoromethylenebis(phosphonate),
 P^1 -(Guanosin-5'-yl)- P^2 -(ψ -uridin-5'-yl)difluoromethylenebis(phosphonate),
5 P^1 -(Guanosin-5'-yl)- P^2 -[5-(β -D-ribofuranosyl)-nicotinamide-5'-yl]difluoromethylenebis(phosphonate),
 P^1 -(Guanosin-5'-yl)- P^2 -[6-(β -D-ribofuranosyl)-picolinamide-5'-yl]difluoromethylenebis(phosphonate),
10 P^1 -(Inosin-5'-yl)- P^2 -(uridin-5'-yl)difluoromethylenebis(phosphonate),
 P^1 -(Inosin-5'-yl)- P^2 -(cytidin-5'-yl)difluoromethylenebis(phosphonate),
 P^1 -(Inosin-5'-yl)- P^2 -(inosin-5'-yl)difluoromethylenebis(phosphonate),
15 P^1 -(Inosin-5'-yl)- P^2 -(thiazofurin-5'-yl)difluoromethylenebis(phosphonate),
 P^1 -(Inosin-5'-yl)- P^2 -(β -D-ribofuranosylbenzene-3-carboxamide-5'-yl)difluoromethylenebis(phosphonate),
20 P^1 -(Uridin-5'-yl)- P^2 -(guanosin-5'-yl)difluoromethylenebis(phosphonate),
 P^1 -(Uridin-5'-yl)- P^2 -(cytidin-5'-yl)difluoromethylenebis(phosphonate),
 P^1 -(Uridin-5'-yl)- P^2 -(uridin-5'-yl)difluoromethylenebis(phosphonate),
25 P^1 -(Uridin-5'-yl)- P^2 -(thiazofurin-5'-yl)difluoromethylenebis(phosphonate),
 P^1 -(Cytidin-5'-yl)- P^2 -(cytidin-5'-yl)difluoromethylenebis(phosphonate),
 P^1 -(Cytidin-5'-yl)- P^2 -(thiazofurin-5'-yl)difluoromethylenebis(phosphonate),
30 P^1 -(Cytidin-5'-yl)- P^2 -(β -D-ribofuranosylbenzene-3-carboxamide-5'-yl)difluoromethylenebis(phosphonate),
 P^1 -(Thiazofurin-5'-yl)- P^2 -(3'-deoxy-3'-fluoroadenosin-

5'-yl)difluoromethylenebis(phosphonate),
 P¹-(Tiazofurin-5'-yl)-P²-(2'-deoxy-2'-fluoroadenosin-
 5'-yl)difluoromethylenebis(phosphonate),
 P¹-(Tiazofurin-5-yl)-P²-[9-(2'-deoxy-2'-fluoro-β-D-
 5 arabinofuranosyl)adenin-5'-yl]difluoromethylenebis-
 (phosphonate),
 P¹-(Tiazofurin-5'-yl)-P²-[9-(3'-deoxy-3'-fluoro-β-D-
 xylofuranosyl)adenin-5'-yl]difluoromethylenebis-
 (phosphonate),
 10 P¹-(β-D-Ribofuranosylbenzene-3-carboxamide-5'-yl)-P²-
 [9-(2'-deoxy-2'-fluoro-adenosin-5'-yl)difluoromethylenebis-
 (phosphonate),
 P¹-(β-D-Ribofuranosylbenzene-3-carboxamide-5'-yl)-P²-
 [9-(deoxy-3'-fluoro-adenosin-5'-yl)difluoromethylenebis-
 15 (phosphonate),
 P¹-(β-D-Ribofuranosylbenzene-3-carboxamide-5'-yl)-P²-
 [9-(3'-deoxy-3'-fluoro-β-D-arabinofuranosyl)adenin-5'-
 yl]difluoromethylenebis(phosphonate), and
 P¹-(β-D-Ribofuranosylbenzene-3-carboxamide-5'-yl)-P²-
 20 [9-(3'-deoxy-3'-fluoro-β-D-xylofuranosyl)adenin-5'-yl]-
 difluoromethylenebis(phosphonate).

15. The method of claim 10, wherein the prepared
 compound is selected from the group consisting of:

25 P¹-(2',3'-isopropylideneadenosin-5'-yl)-P²-(benzyl
 2,3-isopropylidene-β-D-ribosid-5-yl)methylenebis-
 (phosphonate),
 P¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(2,3-O-
 isopropylidene-D-ribonolacton-5-yl)methylenebis-
 30 (phosphonate),
 P¹-(2',3'-O-Isopropylideneguanosin-5'-yl)-P²-(2,3,4,6-

tetra-O-acetyl- α -D-mannopyranosyl)methylenebis-
 (phosphonate),
 P¹-(2',3'-O-Isopropylideneinosin-5'-yl)-P²-(2,3-O-
 isopropylidene-D-ribonolacton-5-yl)methylenebis-
 5 (phosphonate),
 P¹-(2',3'-O-Isopropylideneguanosin-5'-yl)-P²-(2,3-O-
 isopropylidene-D-ribonolacton-5-yl)methylenebis-
 (phosphonate),
 P¹-(2',3'-O-Isopropylideneuridin-5'-yl)-P²-(2,3-O-
 10 isopropylidene-D-ribonolacton-5-yl)methylenebis-
 (phosphonate),
 P¹-(2',3'-O-Isopropylideneuridin-5'-yl)-P²-(2,3,4,6-
 tetra-O-acetyl- β -D-glucopyranosyl)methylenebis-
 (phosphonate),
 15 P¹-(2',3'-O-Isopropylideneuridin-5'-yl)-P²-(2,3,4,6-
 tetra-O-acetyl- α -D-glucopyranosyl)methylenebis-
 (phosphonate),
 P¹-(2',3'-O-Isopropylideneuridin-5'-yl)-P²-(2-
 acetamido-3,4,6-tri-O-acetyl-2-deoxy- β -D-glucopyranosyl)-
 20 methylenebis(phosphonate),
 P¹-(2',3'-O-Isopropylideneuridin-5'-yl)-P²-(2-
 acetamido-3,4,6-tri-O-acetyl-2-deoxy- α -D-glucopyranosyl)-
 methylenebis(phosphonate),
 P¹-(2',3'-O-Isopropylideneuridin-5'-yl)-P²-(2,3,4,6-
 25 tetra-O-acetyl- β -D-galactopyranosyl)methylenebis-
 (phosphonate),
 P¹-(2',3'-O-Isopropylideneuridin-5'-yl)-P²-(2,3,4,6-
 tetra-O-acetyl- α -D-galactopyranosyl)methylenebis-
 (phosphonate),
 30 P¹-(2',3'-O-Isopropylideneuridin-5'-yl)-P²-(2-
 acetamido-3,4,6-tri-O-acetyl-2-deoxy- β -D-galactopyranosyl)-
 methylenebis(phosphonate),

- P^1 -(2',3'-O-Isopropylideneuridin-5'-yl)- P^2 -(2-acetamido-3,4,6-tri-O-acetyl-2-deoxy- α -D-galactopyranosyl)-methylenebis(phosphonate),
- 5 P^1 -(2',3'-O-Isopropylideneuridin-5'-yl)- P^2 -(2,3,4,6-tetra-O-acetyl- β -D-glucopyranosyl)difluoromethylenebis(phosphonate),
- P^1 -(2',3'-O-Isopropylideneuridin-5'-yl)- P^2 -(2,3,4,6-tetra-O-acetyl- α -D-glucopyranosyl)difluoromethylenebis(phosphonate),
- 10 P^1 -(2',3'-O-Isopropylideneadenosin-5'-yl)- P^2 -(2,3-O-isopropylidene-D-ribonolacton-5-yl)difluoromethylenebis(phosphonate),
- P^1 -(2',3'-O-Isopropylideneguanosin-5'-yl)- P^2 -(2,3-O-isopropylidene-D-ribonolacton-5-yl)difluoromethylenebis(phosphonate),
- 15 P^1 -(2',3'-O-Isopropylideneguanosin-5'-yl)- P^2 -(2,3,4,6-tetra-O-acetyl- α -D-mannopyranosyl)difluoromethylenebis(phosphonate),
- P^1 -(2',3'-O-Isopropylideneinosin-5'-yl)- P^2 -(2,3-O-isopropylidene-D-ribonolacton-5-yl)difluoromethylenebis(phosphonate),
- 20 P^1 -(2',3'-O-Isopropylideneuridin-5'-yl)- P^2 -(2,3-O-isopropylidene-D-ribonolacton-5-yl)difluoromethylenebis(phosphonate),
- 25 P^1 -(2',3'-O-Isopropylideneuridin-5'-yl)- P^2 -(2-acetamido-3,4,6-tri-O-acetyl-2-deoxy- β -D-glucopyranosyl)-difluoromethylenebis(phosphonate),
- P^1 -(2',3'-O-Isopropylideneuridin-5'-yl)- P^2 -(2-acetamido-3,4,6-tri-O-acetyl-2-deoxy- α -D-glucopyranosyl)-difluoromethylenebis(phosphonate),
- 30 P^1 -(2',3'-O-Isopropylideneuridin-5'-yl)- P^2 -(2,3,4,6-tetra-O-acetyl- β -D-galactopyranosyl)difluoromethylenebis-

(phosphonate),

P¹-(2',3'-O-Isopropylideneuridin-5'-yl)-P²-(2,3,4,6-tetra-O-acetyl- α -D-galactopyranosyl)difluoromethylenebis-(phosphonate),

5 P¹-(2',3'-O-Isopropylideneuridin-5'-yl)-P²-(2-acetamido-3,4,6-tri-O-acetyl-2-deoxy- β -D-galactopyranosyl)-difluoromethylenebis(phosphonate), and

10 P¹-(2',3'-O-Isopropylideneuridin-5'-yl)-P²-(2-acetamido-3,4,6-tri-O-acetyl-2-deoxy- α -D-galactopyranosyl)-difluoromethylenebis(phosphonate).

16. The method of claim 10, wherein the prepared compound is selected from the group consisting of:

15 P¹-(Adenosin-5'-yl)-P²-(D-ribose-5-yl)methylenebis-(phosphonate),

P¹-(Adenosin-5'-yl)-P²-(D-ribonolacton-5-yl)methylenebis(phosphonate),

P¹-(Guanosin-5'-yl)-P²-(α -D-mannopyranosyl)methylenebis(phosphonate),

20 P¹-(Inosin-5'-yl)-P²-(D-ribonolacton-5-yl)methylenebis(phosphonate),

P¹-(Guanosin-5'-yl)-P²-(D-ribonolacton-5-yl)methylenebis(phosphonate),

25 P¹-(Uridin-5'-yl)-P²-(D-ribonolacton-5-yl)methylenebis(phosphonate),

P¹-(Uridin-5'-yl)-P²-(β -D-glucopyranosyl)methylenebis(phosphonate),

P¹-(Uridin-5'-yl)-P²-(α -D-glucopyranosyl)methylenebis-(phosphonate),

30 P¹-(Uridin-5'-yl)-P²-(2-acetamido-2-deoxy- β -D-glucopyranosyl)methylenebis(phosphonate),

P¹-(Uridin-5'-yl)-P²-(2-acetamido-2-deoxy- α -D-

glucopyranosyl)methylenebis(phosphonate),
 P^1 -(Uridin-5'-yl)- P^2 -(β -D-galactopyranosyl)methylene-
bis(phosphonate),
 P^1 -(Uridin-5'-yl)- P^2 -(α -D-galactopyranosyl)methylene-
5 bis(phosphonate),
 P^1 -(Uridin-5'-yl)- P^2 -(2-acetamido-2-deoxy- β -D-
galactopyranosyl)methylene-bis(phosphonate),
 P^1 -(Uridin-5'-yl)- P^2 -(2-acetamido-2-deoxy- α -D-
galactopyranosyl)methylenebis(phosphonate),
10 P^1 -(Uridin-5'-yl)- P^2 -(β -D-glucopyranosyl)-
difluoromethylenebis(phosphonate),
 P^1 -(Uridin-5'-yl)- P^2 -(α -D-glucopyranosyl)-
difluoromethylenebis(phosphonate),
 P^1 -(Adenosin-5'-yl)- P^2 -(D-ribonolacton-5-yl)-
15 difluoromethylenebis(phosphonate),
 P^1 -(Guanosin-5'-yl)- P^2 -(D-ribonolacton-5-yl)-
difluoromethylenebis(phosphonate),
 P^1 -(Guanosin-5'-yl)- P^2 -(α -D-mannopyranosyl)-
difluoromethylenebis(phosphonate),
20 P^1 -(Inosin-5'-yl)- P^2 -(D-ribonolacton-5-yl)-
difluoromethylenebis(phosphonate),
 P^1 -(Uridin-5'-yl)- P^2 -(D-ribonolacton-5-yl)-
difluoromethylenebis(phosphonate),
 P^1 -(Uridin-5'-yl)- P^2 -(2-acetamido-2-deoxy- β -D-
25 glucopyranosyl)difluoromethylenebis(phosphonate),
 P^1 -(Uridin-5'-yl)- P^2 -(2-acetamido-2-deoxy- α -D-
glucopyranosyl)difluoromethylenebis(phosphonate),
 P^1 -(Uridin-5'-yl)- P^2 -(β -D-galactopyranosyl)-
difluoromethylenebis(phosphonate),
30 P^1 -(Uridin-5'-yl)- P^2 -(α -D-galactopyranosyl)-
difluoromethylenebis(phosphonate),

P¹-(Uridin-5'-yl)-P²-(2-acetamido-2-deoxy-β-D-galactopyranosyl)difluoro-methylenebis(phosphonate), and
P¹-(Uridin-5'-yl)-P²-(2-acetamido-2-deoxy-α-D-galactopyranosyl)difluoromethylenebis(phosphonate).

5

17. The method of claim 10, wherein the prepared compound is selected from the group consisting of:

P¹-(N⁴-acetyl-2',3'-O-isopropylidenecytidin-5'-yl)-P²-(N-acetyl-aminoethyl)methylenebisphosphonate,

10 P¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(N-acetyl-aminoethyl)methylenebis(phosphonate),

P¹-(2',3'-O-Isopropylideneguanosin-5'-yl)-P²-(N-acetyl-aminoethyl)methylenebis(phosphonate),

15 P¹-(2',3'-O-Isopropylideneinosin-5'-yl)-P²-(N-acetyl-aminoethyl)methylenebis(phosphonate),

P¹-(2',3'-O-Isopropylideneuridin-5'-yl)-P²-(N-acetyl-aminoethyl)methylenebis(phosphonate),

P¹-(2',3'-O-Isopropylidene-N⁴-acetylcytidin-5'-yl)-P²-(N-acetylaminopropyl)methylenebis(phosphonate),

20 P¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(N-acetylaminopropyl)methylenebis(phosphonate),

P¹-(2',3'-O-Isopropylideneguanosin-5'-yl)-P²-(N-acetylaminopropyl)methylenebis(phosphonate),

25 P¹-(2',3'-O-Isopropylideneinosin-5'-yl)-P²-(N-acetylaminopropyl)methylenebis(phosphonate),

P¹-(2',3'-O-Isopropylideneuridin-5'-yl)-P²-(N-acetylaminopropyl)methylenebis(phosphonate),

P¹-(2',3'-O-Isopropylidene-N⁴-acetylcytidin-5'-yl)-P²-(N-acetylaminobutyl)methylenebis(phosphonate),

30 P¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(N-acetylaminobutyl)methylenebis(phosphonate),

P¹-(2',3'-O-Isopropylideneguanosin-5'-yl)-P²-(N-acetylaminobutyl)methylenebis(phosphonate),

P¹-(2',3'-O-Isopropylideneinosin-5'-yl)-P²-(N-

acetylaminobutyl)methylenebis(phosphonate),
 $P^1-(2',3'-O\text{-Isopropylideneuridin-5'-yl})-P^2-(N\text{-acetylaminobutyl)methylenebis(phosphonate)},$
 $P^1-(2',3'-O\text{-Isopropylidene-N}^4\text{-acetylcytidin-5'-yl})-P^2-$
5 (N-benzyloxycarbonylaminoethyl)methylenebis(phosphonate),
 $P^1-(2',3'-O\text{-Isopropylideneadenosin-5'-yl})-P^2-(N\text{-benzyloxycarbonylaminoethyl)methylenebis(phosphonate)},$
 $P^1-(2',3'-O\text{-Isopropylideneguanosin-5'-yl})-P^2-(N\text{-benzyloxycarbonylaminoethyl)methylenebis(phosphonate)},$
10 $P^1-(2',3'-O\text{-Isopropylideneinosin-5'-yl})-P^2-(N\text{-benzyloxycarbonylaminoethyl)methylenebis(phosphonate)},$
 $P^1-(2',3'-O\text{-Isopropylideneuridin-5'-yl})-P^2-(N\text{-benzyloxycarbonylaminoethyl)methylenebis(phosphonate)},$
 $P^1-(2',3'-O\text{-Isopropylidene-N}^4\text{-acetylcytidin-5'-yl})-P^2-$
15 (N-benzyloxycarbonylaminoethyl)methylenebis(phosphonate),
 $P^1-(2',3'-O\text{-Isopropylideneadenosin-5'-yl})-P^2-(N\text{-benzyloxycarbonylaminoethyl)methylenebis(phosphonate)},$
 $P^1-(2',3'-O\text{-Isopropylideneguanosin-5'-yl})-P^2-(N\text{-benzyloxycarbonylaminoethyl)methylenebis(phosphonate)},$
20 $P^1-(2',3'-O\text{-Isopropylideneinosin-5'-yl})-P^2-(N\text{-benzyloxycarbonylaminoethyl)methylenebis(phosphonate)},$
 $P^1-(2',3'-O\text{-Isopropylideneuridin-5'-yl})-P^2-(N\text{-benzyloxycarbonylaminoethyl)methylenebis(phosphonate)},$
 $P^1-(2',3'-O\text{-Isopropylidene-N}^4\text{-acetylcytidin-5'-yl})-P^2-$
25 (N-benzyloxycarbonylaminoethyl)methylenebis(phosphonate),
 $P^1-(2',3'-O\text{-Isopropylideneadenosin-5'-yl})-P^2-(N\text{-benzyloxycarbonylaminoethyl)methylenebis(phosphonate)},$
 $P^1-(2',3'-O\text{-Isopropylideneguanosin-5'-yl})-P^2-(N\text{-benzyloxycarbonylaminoethyl)methylenebis(phosphonate)},$
30 $P^1-(2',3'-O\text{-Isopropylideneinosin-5'-yl})-P^2-(N\text{-benzyloxycarbonylaminoethyl)methylenebis(phosphonate)},$
 $P^1-(2',3'-O\text{-Isopropylideneuridin-5'-yl})-P^2-(N\text{-benzyloxycarbonylaminoethyl)methylenebis(phosphonate)},$
 $P^1-(2',3'-O\text{-Isopropylidene-N}^4\text{-acetylcytidin-5'-yl})-P^2-$

(N-butoxycarbonylaminoethyl)methylenebis(phosphonate),
 $P^1-(2',3'-O\text{-Isopropylideneadenosin-5'-yl})-P^2\text{-(N-butoxycarbonylaminoethyl)methylenebis(phosphonate)}$,
 $P^1-(2',3'-O\text{-Isopropylideneguanosin-5'-yl})-P^2\text{-(N-butoxycarbonylaminoethyl)methylenebis(phosphonate)}$,
5 $P^1-(2',3'-O\text{-Isopropylideneinosin-5'-yl})-P^2\text{-(N-butoxycarbonylaminoethyl)methylenebis(phosphonate)}$,
 $P^1-(2',3'-O\text{-Isopropylideneuridin-5'-yl})-P^2\text{-(N-butoxycarbonylaminoethyl)methylenebis(phosphonate)}$,
10 $P^1-(2',3'-O\text{-Isopropylidene-N}^4\text{-acetylcytidin-5'-yl})-P^2\text{-(N-butoxycarbonylaminoethyl)methylenebis(phosphonate)}$,
 $P^1-(2',3'-O\text{-Isopropylideneadenosin-5'-yl})-P^2\text{-(N-butoxycarbonylaminoethyl)methylenebis(phosphonate)}$,
 $P^1-(2',3'-O\text{-Isopropylideneguanosin-5'-yl})-P^2\text{-(N-butoxycarbonylaminoethyl)methylenebis(phosphonate)}$,
15 $P^1-(2',3'-O\text{-Isopropylideneinosin-5'-yl})-P^2\text{-(N-butoxycarbonylaminoethyl)methylenebis(phosphonate)}$,
 $P^1-(2',3'-O\text{-Isopropylideneuridin-5'-yl})-P^2\text{-(N-butoxycarbonylaminoethyl)methylenebis(phosphonate)}$,
20 $P^1-(2',3'-O\text{-Isopropylidene-N}^4\text{-acetylcytidin-5'-yl})-P^2\text{-(N-butoxycarbonylaminoethyl)methylenebis(phosphonate)}$,
 $P^1-(2',3'-O\text{-Isopropylideneadenosin-5'-yl})-P^2\text{-(N-butoxycarbonylaminoethyl)methylenebis(phosphonate)}$,
 $P^1-(2',3'-O\text{-Isopropylideneguanosin-5'-yl})-P^2\text{-(N-butoxycarbonylaminoethyl)methylenebis(phosphonate)}$,
25 $P^1-(2',3'-O\text{-Isopropylideneinosin-5'-yl})-P^2\text{-(N-butoxycarbonylaminoethyl)methylenebis(phosphonate)}$,
 $P^1-(2',3'-O\text{-Isopropylideneuridin-5'-yl})-P^2\text{-(N-butoxycarbonylaminoethyl)methylenebis(phosphonate)}$, and
 $P^1-(2',3'-O\text{-Isopropylidene-N}^4\text{-acetylcytidin-5'-yl})-P^2\text{-(N-butoxycarbonylaminoethyl)methylenebis(phosphonate)}$.

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18. The method of claim 10, wherein the prepared compound is selected from the group consisting of:

$P^1\text{-(Cytidin-5'-yl)-}P^2\text{-(N-acetylaminoethyl)methylenebis(phosphonate)}$,

P^1 - (Adenosin-5' -yl) - P^2 - (N-acetylaminoethyl)methylene-
 bis(phosphonate) ,
 P^1 - (Guanosin-5' -yl) - P^2 - (N-acetylaminoethyl)methylene-
 bis(phosphonate) ,
 5 P^1 - (Inosin-5' -yl) - P^2 - (N-acetylaminoethyl)methylenebis-
 (phosphonate) ,
 P^1 - (Uridin-5' -yl) - P^2 - (N-acetylaminoethyl)methylenebis-
 (phosphonate) ,
 P^1 - (Cytidin-5' -yl) - P^2 - (N-acetylaminopropyl)methylene-
 10 bis(phosphonate) ,
 P^1 - (Adenosin-5' -yl) - P^2 - (N-acetylaminopropyl)methylene-
 bis(phosphonate) ,
 P^1 - (Guanosin-5' -yl) - P^2 - (N-acetylaminopropyl)methylene-
 bis(phosphonate) ,
 15 P^1 - (Inosin-5' -yl) - P^2 - (N-acetylaminopropyl)methylene-
 bis(phosphonate) ,
 P^1 - (Uridin-5' -yl) - P^2 - (N-acetylaminopropyl)methylene-
 bis(phosphonate) ,
 P^1 - (Cytidin-5' -yl) - P^2 - (N-acetylaminobutyl)methylene-
 20 bis(phosphonate) ,
 P^1 - (Adenosin-5' -yl) - P^2 - (N-acetylaminobutyl)methylene-
 bis(phosphonate) ,
 P^1 - (Guanosin-5' -yl) - P^2 - (N-acetylaminobutyl)methylene-
 bis(phosphonate) ,
 25 P^1 - (Inosin-5' -yl) - P^2 - (N-acetylaminobutyl)methylenebis-
 (phosphonate) ,
 P^1 - (Uridin-5' -yl) - P^2 - (N-acetylaminobutyl)methylenebis-
 (phosphonate) ,
 P^1 - (Cytidin-5' -yl) - P^2 - (N-benzyloxycarbonylaminoethyl) -
 30 methylenebis(phosphonate) ,
 P^1 - (Adenosin-5' -yl) - P^2 - (N-benzyloxycarbonylamino-
 ethyl)methylenebis(phosphonate) ,
 P^1 - (Guanosin-5' -yl) - P^2 - (N-benzyloxycarbonylamino-
 ethyl)methylenebis(phosphonate) ,

- P^1 -(Inosin-5'-yl)- P^2 -(N-benzyloxycarbonylaminoethyl)-
 methylenebis(phosphonate),
 P^1 -(Uridin-5'-yl)- P^2 -(N-benzyloxycarbonylaminoethyl)-
 methylenebis(phosphonate),
 5 P^1 -(Cytidin-5'-yl)- P^2 -(N-benzyloxycarbonylamino-
 propyl)methylenebis(phosphonate),
 P^1 -(Adenosin-5'-yl)- P^2 -(N-benzyloxycarbonylamino-
 propyl)methylenebis(phosphonate),
 P^1 -(Guanosin-5'-yl)- P^2 -(N-benzyloxycarbonylamino-
 10 propyl)methylenebis(phosphonate),
 P^1 -(Inosin-5'-yl)- P^2 -(N-benzyloxycarbonylamino-
 propyl)methylenebis(phosphonate),
 P^1 -(Uridin-5'-yl)- P^2 -(N-benzyloxycarbonylamino-
 propyl)methylenebis(phosphonate),
 15 P^1 -(Cytidin-5'-yl)- P^2 -(N-benzyloxycarbonylamino-
 butyl)methylenebis(phosphonate),
 P^1 -(Adenosin-5'-yl)- P^2 -(N-benzyloxycarbonylamino-
 butyl)methylenebis(phosphonate),
 P^1 -(Guanosin-5'-yl)- P^2 -(N-benzyloxycarbonylamino-
 20 butyl)methylenebis(phosphonate),
 P^1 -(Inosin-5'-yl)- P^2 -(N-benzyloxycarbonylamino-
 butyl)methylenebis(phosphonate),
 P^1 -(Uridin-5'-yl)- P^2 -(N-benzyloxycarbonylamino-
 butyl)methylenebis(phosphonate),
 25 P^1 -(Cytidin-5'-yl)- P^2 -(N-butoxycarbonylaminoethyl)-
 methylenebis(phosphonate),
 P^1 -(Adenosin-5'-yl)- P^2 -(N-butoxycarbonylaminoethyl)-
 methylenebis(phosphonate),
 P^1 -(Guanosin-5'-yl)- P^2 -(N-butoxycarbonylaminoethyl)-
 30 methylenebis(phosphonate),
 P^1 -(Inosin-5'-yl)- P^2 -(N-butoxycarbonylaminoethyl)-
 methylenebis(phosphonate),
 P^1 -(Uridin-5'-yl)- P^2 -(N-butoxycarbonylaminoethyl)-
 methylenebis(phosphonate),

P^1 -(Cytidin-5'-yl)- P^2 -(N-butoxycarbonylaminopropyl)-
 methylenebis(phosphonate),
 P^1 -(Adenosin-5'-yl)- P^2 -(N-butoxycarbonylaminopropyl)-
 methylenebis(phosphonate),
 5 P^1 -(Guanosin-5'-yl)- P^2 -(N-butoxycarbonylaminopropyl)-
 methylenebis(phosphonate),
 P^1 -(Inosin-5'-yl)- P^2 -(N-butoxycarbonylaminopropyl)-
 methylenebis(phosphonate),
 P^1 -(Uridin-5'-yl)- P^2 -(N-butoxycarbonylaminopropyl)-
 10 methylenebis(phosphonate),
 P^1 -(Cytidin-5'-yl)- P^2 -(N-butoxycarbonylaminobutyl)-
 methylenebis(phosphonate),
 P^1 -(Adenosin-5'-yl)- P^2 -(N-butoxycarbonylaminobutyl)-
 methylenebis(phosphonate),
 15 P^1 -(Guanosin-5'-yl)- P^2 -(N-butoxycarbonylaminobutyl)-
 methylenebis(phosphonate),
 P^1 -(Inosin-5'-yl)- P^2 -(N-butoxycarbonylaminobutyl)-
 methylenebis(phosphonate), and
 P^1 -(Uridin-5'-yl)- P^2 -(N-butoxycarbonylaminobutyl)-
 20 methylenebis(phosphonate).

19. The method of claim 10, wherein the prepared
 compound is selected from the group consisting of:
 the methylenebis(phosphonate) analogue of flavin
 25 adenine dinucleotide,
 P^1 -(2',3'-O-Isopropylideneadenosin-5'-yl)- P^2 -(ethyl
 2,4-dihydroxy-3,3-dimethylbutyrate-4-yl)methylenebis-
 (phosphonate),
 P^1 -(2',3'-O-Isopropylideneadenosin-5'-yl)- P^2 -(2,4-
 30 dihydroxy-3,3-dimethylbutyryl- β -alanyl- β -aminoethanethil-S-
 acetyl-4-yl)methylenebis(phosphonate),
 P^1 -(2',3'-O-Isopropylideneguanosin-5'-yl)- P^2 -
 (riboflavin-5'-yl)methylenebis(phosphonate),
 P^1 -(2',3'-O-Isopropylideneguanosin-5'-yl)- P^2 -(ethyl

2,4-dihydroxy-3,3-dimethylbutyrate-4-yl)methylenebis-
(phosphonate),

P¹-(2',3'-O-Isopropylidene-guanosin-5'-yl)-P²-(2,4-
dihydroxy-3,3-dimethylbutyryl-β-alanyl-β-aminoethanethiol-
5 S-acetyl-4-yl)methylenebis(phosphonate),

P¹-(2',3'-O-Isopropylidene-inosin-5'-yl)-P²-
(riboflavin-5'-yl)methylenebis(phosphonate),

P¹-(2',3'-O-Isopropylidene-inosin-5'-yl)-P²-(ethyl 2,4-
dihydroxy-3,3-dimethylbutyrate-4-yl)methylenebis-
10 (phosphonate),

P¹-(2',3'-O-Isopropylidene-inosin-5'-yl)-P²-(2,4-
dihydroxy-3,3-dimethylbutyryl-β-alanyl-β-aminoethanethiol-
S-acetyl-4-yl)methylenebis(phosphonate),

P¹-(2',3'-O-Isopropylidene-uridin-5'-yl)-P²-
15 (riboflavin-5'-yl)methylenebis(phosphonate),

P¹-(2',3'-O-Isopropylidene-uridin-5'-yl)-P²-(ethyl 2,4-
dihydroxy-3,3-dimethylbutyrate-4-yl)methylenebis-
(phosphonate),

P¹-(2',3'-O-Isopropylidene-uridin-5'-yl)-P²-(2,4-
20 dihydroxy-3,3-dimethylbutyryl-β-alanyl-β-aminoethanethiol-
S-acetyl-4-yl)methylenebis(phosphonate),

P¹-(2',3'-O-Isopropylidene-N⁴-acetylcytidin-5'-yl)-P²-
(riboflavin-5'-yl)methylenebis(phosphonate),

P¹-(2',3'-O-Isopropylidene-N⁴-acetylcytidin-5'-yl)-P²-
25 (ethyl 2,4-dihydroxy-3,3-dimethylbutyrate-4-
yl)methylenebis-(phosphonate), and

P¹-(2',3'-O-Isopropylidene-N⁴-acetylcytidin-5'-yl)-P²-
(2,4-dihydroxy-3,3-dimethylbutyryl-β-alanyl-β-
aminoethanethiol-S-acetyl-4-yl)methylenebis(phosphonate).

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20. The method of claim 10, wherein the prepared
compound is selected from the group consisting of:

P¹-(adenosin-5'-yl)-P²-(riboflavin-5'-yl)methylene-

bis(phosphonate),
 P¹-(Adenosin-5'-yl)-P²-(ethyl-2,4-dihydroxy-3,3-
 dimethylbutyrate-4-yl)methylenebis(phosphonate),
 P¹-(Adenosin-5'-yl)-P²-(2,4-dihydroxy-3,3-
 5 dimethylbutyryl-β-alanyl-β-aminoethanethil-S-acetyl-4-
 yl)methylenebis(phosphonate),
 P¹-(Guanosin-5'-yl)-P²-(riboflavin-5'-yl)methylenebis-
 (phosphonate),
 P¹-(Guanosin-5'-yl)-P²-(ethyl-2,4-dihydroxy-3,3-
 10 dimethylbutyrate-4-yl)methylenebis-(phosphonate),
 P¹-(Guanosin-5'-yl)-P²-(2,4-dihydroxy-3,3-
 dimethylbutyryl-β-alanyl-β-aminoethanethiol-S-acetyl-4-
 yl)methylenebis(phosphonate),
 P¹-(Inosin-5'-yl)-P²-(riboflavin-5'-yl)methylenebis-
 15 (phosphonate),
 P¹-(Inosin-5'-yl)-P²-(ethyl-2,4-dihydroxy-3,3-
 dimethylbutyrate-4-yl)methylenebis(phosphonate),
 P¹-(Inosin-5'-yl)-P²-(2,4-dihydroxy-3,3-
 dimethylbutyryl-β-alanyl-β-aminoethanethiol-S-acetyl-4-
 20 yl)methylenebis-(phosphonate),
 P¹-(Uridin-5'-yl)-P²-(riboflavin-5'-yl)methylenebis-
 (phosphonate),
 P¹-(Uridin-5'-yl)-P²-(ethyl-2,4-dihydroxy-3,3-
 dimethylbutyrate-4-yl)methylenebis(phosphonate),
 25 P¹-(Uridin-5'-yl)-P²-(2,4-dihydroxy-3,3-
 dimethylbutyryl-β-alanyl-β-aminoethanethiol-4-
 yl)methylenebis(phosphonate),
 P¹-(Cytidin-5'-yl)-P²-(riboflavin-5'-yl)methylenebis-
 (phosphonate),
 30 P¹-(Cytidin-5'-yl)-P²-(ethyl-2,4-dihydroxy-3,3-
 dimethylbutyrate-4-yl)methylenebis(phosphonate), and
 P¹-(Cytidin-5'-yl)-P²-(2,4-dihydroxy-3,3-
 dimethylbutyryl-β-alanyl-β-aminoethanethiol-4-

yl)methylenebis(phosphonate).

21. The method of claim 10, wherein the prepared compound is selected from the group consisting of:

- 5 P^1 -5'-O-(2',3'-O-Isopropylidene- N^4 -acetylcytidin-5-yl)- P^2 -O-(1,2-dipalmitoyl-sn-glycer-1-yl)methylenebis(phosphonate),
- P^1 -(2',3'-O-Isopropylideneadenosin-5'-yl)- P^2 -(2,3-di-O-palmitoylglycer-1-yl)methylenebis(phosphonate),
- 10 P^1 -(2',3'-O-Isopropylideneguanosin-5'-yl)- P^2 -(2,3-di-O-palmitoylglycer-1-yl)methylenebis(phosphonate),
- P^1 -(2',3'-O-Isopropylideneinosin-5'-yl)- P^2 -(2,3-di-O-palmitoylglycer-1-yl)methylenebis(phosphonate),
- P^1 -(2',3'-O-Isopropylideneuridin-5'-yl)- P^2 -(2,3-di-O-palmitoylglycer-1-yl)methylenebis(phosphonate),
- 15 P^1 -(2',3'-O-Isopropylideneadenosin-5'-yl)- P^2 -(2,3-di-O-laurylglycer-1-yl)methylenebis(phosphonate),
- P^1 -(2',3'-O-Isopropylideneguanosin-5'-yl)- P^2 -(2,3-di-O-laurylglycer-1-yl)methylenebis(phosphonate),
- P^1 -(2',3'-O-Isopropylideneinosin-5'-yl)- P^2 -(2,3-di-O-laurylglycer-1-yl)methylenebis(phosphonate),
- 20 P^1 -(2',3'-O-Isopropylideneuridin-5'-yl)- P^2 -(2,3-di-O-laurylglycer-1-yl)methylenebis(phosphonate),
- P^1 -(2',3'-O-Isopropylidene- N^4 -acetylcytidin-5'-yl)- P^2 -(2,3-di-O-laurylglycer-1-yl)methylenebis(phosphonate),
- 25 P^1 -(2',3'-O-Isopropylideneadenosin-5'-yl)- P^2 -(2,3-di-O-myristoylglycer-1-yl)methylenebis(phosphonate),
- P^1 -(2',3'-O-Isopropylideneguanosin-5'-yl)- P^2 -(2,3-di-O-myristoylglycer-1-yl)methylenebis(phosphonate),
- P^1 -(2',3'-O-Isopropylideneinosin-5'-yl)- P^2 -(2,3-di-O-myristoylglycer-1-yl)methylenebis(phosphonate),
- 30 P^1 -(2',3'-O-Isopropylideneuridin-5'-yl)- P^2 -(2,3-di-O-myristoylglycer-1-yl)methylenebis(phosphonate),
- P^1 -(2',3'-O-Isopropylidene- N^4 -acetylcytidin-5'-yl)- P^2 -

(2,3-di-O-myristoylglycer-1-yl)methylenebis(phosphonate),
 p¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(2,3-di-
 O-stearyl-glycer-1-yl)methylenebis(phosphonate),
 p¹-(2',3'-O-Isopropylideneguanosin-5'-yl)-P²-(2,3-di-
 5 O-stearyl-glycer-1-yl)methylenebis(phosphonate),
 p¹-(2',3'-O-Isopropylideneinosin-5'-yl)-P²-(2,3-di-O-
 stearyl-glycer-1-yl)methylenebis(phosphonate),
 p¹-(2',3'-O-Isopropylideneuridin-5'-yl)-P²-(2,3-di-O-
 stearyl-glycer-1-yl)methylenebis(phosphonate),
 10 p¹-(2',3'-O-Isopropylidene-N⁴-acetylcytidin-5'-yl)-P²-
 (2,3-di-O-stearyl-glycer-1-yl)methylenebis(phosphonate),
 p¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(2,3-di-
 O-oleyl-glycer-1-yl)methylenebis(phosphonate),
 p¹-(2',3'-O-Isopropylideneguanosin-5'-yl)-P²-(2,3-di-
 15 O-oleyl-glycer-1-yl)methylenebis(phosphonate),
 p¹-(2',3'-O-Isopropylideneinosin-5'-yl)-P²-(2,3-di-O-
 oleyl-glycer-1-yl)methylenebis(phosphonate),
 p¹-(2',3'-O-Isopropylideneuridin-5'-yl)-P²-(2,3-di-O-
 oleyl-glycer-1-yl)methylenebis(phosphonate),
 20 p¹-(2',3'-O-Isopropylidene-N⁴-acetylcytidin-5'-yl)-P²-
 (2,3-di-O-oleyl-glycer-1-yl)methylenebis(phosphonate),
 p¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(2,3-di-
 Q-linoleyl-glycer-1-yl)methylenebis(phosphonate),
 p¹-(2',3'-O-Isopropylideneguanosin-5'-yl)-P²-(2,3-di-
 25 O-linoleyl-glycer-1-yl)methylenebis(phosphonate),
 p¹-(2',3'-O-Isopropylideneinosin-5'-yl)-P²-(2,3-di-O-
 linoleyl-glycer-1-yl)methylenebis(phosphonate),
 p¹-(2',3'-O-Isopropylideneuridin-5'-yl)-P²-(2,3-di-O-
 linoleyl-glycer-1-yl)methylenebis(phosphonate),
 30 p¹-(2',3'-O-Isopropylidene-N⁴-acetylcytidin-5'-yl)-P²-
 (2,3-di-O-linoleyl-glycer-1-yl)methylenebis(phosphonate),
 p¹-(2',3'-O-Isopropylideneadenosin-5'-yl)-P²-(2,3-di-
 O-linolenyl-glycer-1-yl)methylenebis(phosphonate),
 p¹-(2',3'-O-Isopropylideneguanosin-5'-yl)-P²-(2,3-di-

O-linolenylglycer-1-yl)methylenebis(phosphonate),

P¹-(2',3'-O-Isopropylideneinosin-5'-yl)-P²-(2,3-di-O-linolenylglycer-1-yl)methylenebis(phosphonate),

P¹-(2',3'-O-Isopropylideneuridin-5'-yl)-P²-(2,3-di-O-linolenylglycer-1-yl)methylenebis(phosphonate), and

P¹-(2',3'-O-Isopropylidene-N⁴-acetylcytidin-5'-yl)-P²-(2,3-di-O-linolenylglycer-1-yl)methylenebis(phosphonate).

22. The method of claim 10, wherein the prepared compound is selected from the group consisting of:

N¹-(n-butan-4-yl)-2',3'-O-isopropylideneinosin-5'-yl cyclic P¹,P²-methylenebis(phosphonate),

N¹-(n-Butan-4-yl)-2',3'-O-isopropylideneadeosin-5'-yl cyclic P¹,P²-methylenebis(phosphonate),

N¹-(n-Butan-4-yl)-2',3'-O-isopropylideneguanosin-5'-yl cyclic P¹,P²-methylenebis(phosphonate),

N¹-(n-Butan-4-yl)-2',3'-O-isopropylideneuridin-5'-yl cyclic P¹,P²-methylenebis(phosphonate),

N¹-(n-Butan-4-yl)-2',3'-O-isopropylidene-N⁴-acetylcytidin-5'-yl cyclic P¹,P²-methylenebis(phosphonate),

N¹-(2,3-Dihydroxy-4-hydroxymethylcyclopentan-6-yl)-2',3'-O-isopropylideneadeosin-5'-yl cyclic P¹,P²-methylenebis(phosphonate),

N¹-(2,3-Dihydroxy-4-hydroxymethylcyclopentan-6-yl)-2',3'-O-isopropylideneguanosin-5'-yl cyclic P¹,P²-methylenebis(phosphonate),

N¹-(2,3-Dihydroxy-4-hydroxymethylcyclopentan-6-yl)-2',3'-O-isopropylideneinosin-5'-yl cyclic P¹,P²-methylenebis(phosphonate),

N¹-(2,3-Dihydroxy-4-hydroxymethylcyclopentan-6-yl)-2',3'-O-isopropylideneuridin-5'-yl cyclic P¹,P²-methylenebis(phosphonate),

N¹-(2,3-Dihydroxy-4-hydroxymethylcyclopentan-6-yl)-2',3'-O-isopropylidene-N⁴-acetylcytidin-5'-yl cyclic P¹,P²-

methylenebis(phosphonate),

N¹-(Ethoxymethan-2-yl)-2',3'-O-isopropylideneadeosin-5'-yl cyclic P¹,P²-methylenebis(phosphonate),

5 N¹-(Ethoxymethan-2-yl)-2',3'-O-isopropylidene-guanosin-5'-yl cyclic P¹,P²-methylenebis(phosphonate),

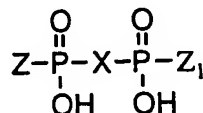
N¹-(Ethoxymethan-2-yl)-2',3'-O-isopropylideneinosin-5'-yl cyclic P¹,P²-methylenebis(phosphonate),

N¹-(Ethoxymethan-2-yl)-2',3'-O-isopropylideneuridin-5'-yl cyclic P¹,P²-methylenebis(phosphonate), and

10 N¹-(Ethoxymethan-2-yl)-2',3'-O-isopropylidene-N⁴-acetylcytidin-5'-yl cyclic P¹,P²-methylenebis(phosphonate).

23. A compound having the following structure:

15



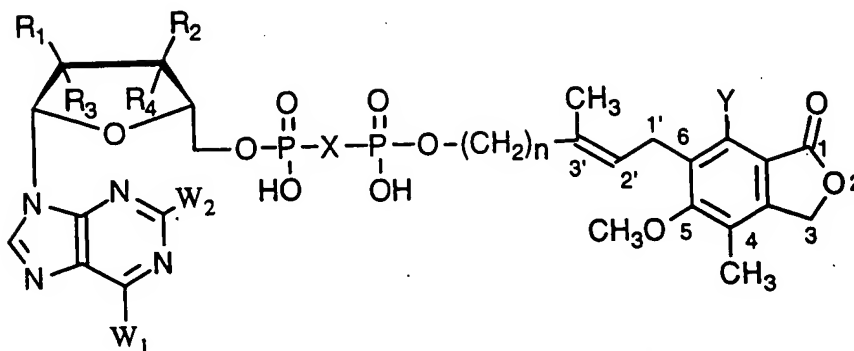
wherein

Z and Z₁ are the same or different and are alkyl, aralkyl, aryl, aminoalkyl, alkyloxy, aralkyloxy, 20 alkylamino, aralkylamino, arylamino, alkylmercaptan, aralkylmercaptan, arylmercaptan, carbohydrate, nucleoside, steroid, or substituted glyceride; and

X is methylene (-CH₂-), mono- or di-halo methylene, or -NR-, where R is H or alkyl.

25

24. A compound having the following structure:



- 5 wherein
 each of R_1 , R_2 , R_3 , and R_4 is independently H, OH or F;
 X is O, S, mono- or di-halomethylene, or NR wherein R
 is H or alkyl, or CH_2 ;
 Y is OH, SH or F; and
 10 each of W_1 and W_2 is independently H, OH, =O, OR, SH,
 SR, NH_2 , NHR or NR_2 , wherein R is C_1 - C_5 alkyl and n is an
 integer from 1 to 5.

25. The compound of claim 24, wherein the compound is
 15 selected from the group consisting of:

- P1-(2',3'-O-isopropylideneadenosin-5'-yl)-P2-[7-
 hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 methylhex-2'-ene-6'-yl)methylene-bis(phosphonate),
 P1-(2',3'-O-isopropylideneadenosin-5'-yl)-P2-[7-
 20 hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 methylbut-2'-ene-4'-yl)]methylene-bis(phosphonate),
 P1-(2',3'-O-isopropylideneadenosin-5'-yl)-P2-[7-
 hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 methylpent-2'-ene-5'-yl)]methylene-bis(phosphonate),
 25 P1-(2',3'-O-isopropylideneadenosin-5'-yl)-P2-[7-
 hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 methylhept-2'-ene-7'-yl)]methylene-bis(phosphonate),
 P1-(2',3'-O-isopropylideneadenosin-5'-yl)-P2-[7-

hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 methylocta-2'-ene-8'-yl)]methylene-bis(phosphonate),
 p¹-(3'-O-acetyl-2'-fluoro-2'-deoxyadenosin-5'-yl)-p²-
 [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 5 methylbut-2'-ene-4'-yl)]methylene-bis(phosphonate),
 p¹-(3'-O-acetyl-2'-fluoro-2'-deoxyadenosin-5'-yl)-p²-
 [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 methylpent-2'-ene-5'-yl)]methylene-bis(phosphonate),
 p¹-(3'-O-acetyl-2'-fluoro-2'-deoxyadenosin-5'-yl)-p²-
 10 [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 methylhex-2'-ene-6'-yl)]methylene-bis(phosphonate),
 p¹-(3'-O-acetyl-2'-fluoro-2'-deoxyadenosin-5'-yl)-p²-
 (7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 methylhept-2'-ene-7'-yl)]methylene-bis(phosphonate),
 15 p¹-(3'-O-acetyl-2'-fluoro-2'-deoxyadenosin-5'-yl)-p²-
 [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 methylocta-2'-ene-8'-yl)]methylene-bis(phosphonate),
 p¹-(2'-O-acetyl-3'-fluoro-3'-deoxyadenosin-5'-yl)-p²-
 [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 20 methylbut-2'-ene-4'-yl)]methylene-bis(phosphonate),
 p¹-(2'-O-acetyl-3'-fluoro-3'-deoxyadenosin-5'-yl)-p²-
 [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 methylpent-2'-ene-5'-yl)]methylene-bis(phosphonate),
 p¹-(2'-O-acetyl-3'-fluoro-3'-deoxyadenosin-5'-yl)-p²-
 25 [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 methylhex-2'-ene-6'-yl)]methylene-bis(phosphonate),
 p¹-(2'-O-acetyl-3'-fluoro-3'-deoxyadenosin-5'-yl)-p²-
 (7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 methylhept-2'-ene-7'-yl)]methylene-bis(phosphonate),
 30 p¹-(2'-O-acetyl-3'-fluoro-3'-deoxyadenosin-5'-yl)-p²-
 [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 methylocta-2'-ene-8'-yl)]methylene-bis(phosphonate),
 p¹-[9-(3'-O-acetyl-2'-fluoro-2'-deoxy-β-D-
 arabinofuranosyl)adenin-5'-yl]-p²-[7-hydroxy-5-methoxy-4-
 35 methyl-phthalan-1-on-6-yl-(3'-methylbut-2'-ene-4'-

- yl)]methylenebis(phosphonate),
 P^1 -[9-(3'-O-acetyl-2'-fluoro-2'-deoxy- β -D-arabinofuranosyl)adenin-5'-yl]- P^2 -[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylpent-2-ene-5'-yl)]methylenebis(phosphonate),
- 5 P^1 -[9-(3'-O-acetyl-2'-fluoro-2'-deoxy- β -D-arabinofuranosyl)adenin-5'-yl]- P^2 -[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhex-2'-ene-6'-yl)]methylenebis(phosphonate),
- 10 P^1 -[9-(3'-O-acetyl-2'-fluoro-2'-deoxy- β -D-arabinofuranosyl)adenin-5'-yl]- P^2 -[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhept-2-ene-7'-yl)]methylenebis(phosphonate),
- P^1 -[9-(3'-O-acetyl-2'-fluoro-2'-deoxy- β -D-arabinofuranosyl)adenin-5'-yl]- P^2 -[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methyloct-ene-8'-yl)]methylenebis(phosphonate),
- 15 P^1 -[9-(2'-O-acetyl-3'-fluoro-3'-deoxy- β -D-arabinofuranosyl)adenin-5'-yl]- P^2 -[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylbut-2-ene-4'-yl)]methylenebis(phosphonate),
- 20 P^1 -[9-(2'-O-acetyl-3'-fluoro-3'-deoxy- β -D-arabinofuranosyl)adenin-5'-yl]- P^2 -[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylpent-2-ene-5'-yl)]methylenebis(phosphonate),
- 25 P^1 -[9-(2'-O-acetyl-3'-fluoro-3'-deoxy- β -D-arabinofuranosyl)adenin-5'-yl]- P^2 -[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhex-2'-ene-6'-yl)]methylenebis(phosphonate),
- 30 P^1 -[9-(2'-O-acetyl-3'-fluoro-3'-deoxy- β -D-arabinofuranosyl)adenin-5'-yl]- P^2 -[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhept-2'-ene-7'-yl)]methylenebis(phosphonate),
- P^1 -[9-(2'-O-acetyl-3'-fluoro-3'-deoxy- β -D-

arabinofuranosyl)adenin-5'-yl]-P²-[7-hydroxy-5-methoxy-4-
 methyl-phthalan-1-on-6-yl-(3'-methyloct-2'-ene-8'-
 yl)]methylenebis(phosphonate),
 P¹-(2',3'-O-isopropylideneguanosin-5'-yl)-P²-[7-
 5 hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 methylbut-2'-ene-4'-yl)]methylene-bis(phosphonate),
 P¹-(2',3'-O-isopropylideneguanosin-5'-yl)-P²-[7-
 hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 methylpent-2'-ene-5'-yl)]methylene-bis(phosphonate),
 10 P¹-(2',3'-O-isopropylideneguanosin-5'-yl)-P²-[7-
 hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 methylhex-2'-ene-6'-yl)]methylene-bis(phosphonate),
 P¹-(2',3'-O-isopropylideneguanosin-5'-yl)-P²-[7-
 hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 15 methylhept-2'-ene-7'-yl)]methylene-bis(phosphonate),
 P¹-(2',3'-O-isopropylideneguanosin-5'-yl)-P²-[7-
 hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 methyloct-2'-ene-8'-yl)]methylene-bis(phosphonate),
 P¹-(3'-O-acetyl-2'-fluoro-2'-deoxyguanosin-5'-yl)-P²-
 20 [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 methylbut-2'-ene-4'-yl)]methylene-bis(phosphonate),
 P¹-(3'-O-acetyl-2'-fluoro-2'-deoxyguanosin-5'-yl)-P²-
 [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 methylpent-2'-ene-5'-yl)]methylene-bis(phosphonate),
 25 P¹-(3'-O-acetyl-2'-fluoro-2'-deoxyguanosin-5'-yl)-P²-
 [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 methylhex-2'-ene-6'-yl)]methylene-bis(phosphonate),
 P¹-(3'-O-acetyl-2'-fluoro-2'-deoxyguanosin-5'-yl)-P²-
 [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 30 methylhept-2'-ene-7'-yl)]methylene-bis(phosphonate),
 P¹-(3'-O-acetyl-2'-fluoro-2'-deoxyguanosin-5'-yl)-P²-
 [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 methyloct-2'-ene-8'-yl)]methylene-bis(phosphonate),
 P¹-(2'-O-acetyl-3'-fluoro-3'-deoxyguanosin-5'-yl)-P²-
 35 [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-

methylbut-2'-ene-4'-yl)]methylene-bis(phosphonate),
 p¹-(2'-O-acetyl-3'-fluoro-3'-deoxyguanosin-5'-yl)-p²-
 [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 methylpent-2'-ene-5'-yl)]methylene-bis(phosphonate),
 5 p¹-(2'-O-acetyl-3'-fluoro-3'-deoxyguanosin-5'-yl)-p²-
 [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 methylhex-2'-ene-6'-yl)]methylene-bis(phosphonate),
 p¹-(2'-O-acetyl-3'-fluoro-3'-deoxyguanosin-5'-yl)-p²-
 [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 10 methylhept-2'-ene-7'-yl)]methylene-bis(phosphonate),
 p¹-(2'-O-acetyl-3'-fluoro-3'-deoxyguanosin-5'-yl)-p²-
 [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
 methyloct-2'-ene-8'-yl)]methylene-bis(phosphonate),
 p¹-[9-(3'-O-acetyl-2'-fluoro-2'-deoxy-β-D-
 15 arabinofuranosyl)guanin-5'-yl]-p²-[7-hydroxy-5-methoxy-4-
 methyl-phthalan-1-on-6-yl-(3'-methylbut-2'-ene-4'-
 yl)]methylenebis(phosphonate),
 p¹-[9-(3'-O-acetyl-2'-fluoro-2'-deoxy-β-D-
 arabinofuranosyl)guanin-5'-yl]-p²-[7-hydroxy-5-methoxy-4-
 20 methyl-phthalan-1-on-6-yl-(3'-methylpent-2'-ene-5'-
 yl)]methylenebis(phosphonate),
 p¹-[9-(3'-O-acetyl-2'-fluoro-2'-deoxy-β-D-
 arabinofuranosyl)guanin-5'-yl]-p²-[7-hydroxy-5-methoxy-4-
 methyl-phthalan-1-on-6-yl-(3'-methylhex-2'-ene-6'-
 25 yl)]methylenebis(phosphonate),
 p¹-[9-(3'-O-acetyl-2'-fluoro-2'-deoxy-β-D-
 arabinofuranosyl)guanin-5'-yl]-p²-[7-hydroxy-5-methoxy-4-
 methyl-phthalan-1-on-6-yl-(3'-methylhept-2'-ene-7'-
 yl)]methylenebis(phosphonate),
 30 p¹-[9-(3'-O-acetyl-2'-fluoro-2'-deoxy-β-D-
 arabinofuranosyl)guanin-5'-yl]-p²-[7-hydroxy-5-methoxy-4-
 methyl-phthalan-1-on-6-yl-(3'-methyloct-2'-ene-8'-
 yl)]methylenebis(phosphonate),
 p¹-[9-(2'-O-acetyl-3'-fluoro-3'-deoxy-β-D-

- arabinofuranosyl)guanin-5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylbut-2'-ene-4'-yl)]methylenebis(phosphonate),
P¹-[9-(2'-O-acetyl-3'-fluoro-3'-deoxy-β-D-
- 5 arabinofuranosyl)guanin-5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylpent-2'-ene-5'-yl)]methylenebis(phosphonate),
P¹-[9-(2'-O-acetyl-3'-fluoro-3'-deoxy-β-D-
- 10 arabinofuranosyl)guanin-5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhex-2'-ene-6'-yl)]methylenebis(phosphonate),
P¹-[9-(2'-O-acetyl-3'-fluoro-3'-deoxy-β-D-
- 15 arabinofuranosyl)guanin-5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhept-2'-ene-7'-yl)]methylenebis(phosphonate),
P¹-[9-(2'-O-acetyl-3'-fluoro-3'-deoxy-β-D-
- 20 arabinofuranosyl)guanin-5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methyloct-2'-ene-8'-yl)]methylenebis(phosphonate),
P¹-(2',3'-O-isopropylideneinosin-5'-yl)-P²-[7-hydroxy-
- 25 5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylbut-2'-ene-4'-yl)]methylene-bis(phosphonate),
P¹-(2',3'-O-isopropylideneinosin-5'-yl)-P²-[7-hydroxy-
- 5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylpent-2'-ene-5'-yl)]methylene-bis(phosphonate),
P¹-(2',3'-O-isopropylideneinosin-5'-yl)-P²-[7-hydroxy-
- 30 5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhex-2'-ene-6'-yl)]methylene-bis(phosphonate),
P¹-(2',3'-O-isopropylideneinosin-5'-yl)-P²-[7-hydroxy-
- 5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhept-2'-ene-7'-yl)]methylene-bis(phosphonate),
P¹-(2',3'-O-isopropylideneinosin-5'-yl)-P²-[7-hydroxy-
- 35 5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methyloct-2'-ene-8'-yl)]methylene-bis(phosphonate),
P¹-(3'-O-acetyl-2'-fluoro-2'-deoxyinosin-5'-yl)-P²-[7-

- hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylbut-2'-ene-4'-yl)]methylene-bis(phosphonate),
 $P^1-(3'-O-acetyl-2'-fluoro-2'-deoxyinosin-5'-yl)-P^2-[7-$
hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
5 methylpent-2'-ene-5'-yl)]methylene-bis(phosphonate),
 $P^1-(3'-O-acetyl-2'-fluoro-2'-deoxyinosin-5'-yl)-P^2-[7-$
hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
methylhex-2'-ene-6'-yl)]methylene-bis(phosphonate),
 $P^1-(3'-O-acetyl-2'-fluoro-2'-deoxyinosin-5'-yl)-P^2-[7-$
10 hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
methylhept-2'-ene-7'-yl)]methylene-bis(phosphonate),
 $P^1-(3'-O-acetyl-2'-fluoro-2'-deoxyinosin-5'-yl)-P^2-[7-$
hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
methyloct-2'-ene-8'-yl)]methylene-bis(phosphonate),
15 $P^1-(2'-O-acetyl-3'-fluoro-3'-deoxyinosin-5'-yl)-P^2-[7-$
hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
methylbut-2'-ene-4'-yl)]methylene-bis(phosphonate),
 $P^1-(2'-O-acetyl-3'-fluoro-3'-deoxyinosin-5'-yl)-P^2-[7-$
hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
20 methylpent-2'-ene-5'-yl)]methylene-bis(phosphonate),
 $P^1-(2'-O-acetyl-3'-fluoro-3'-deoxyinosin-5'-yl)-P^2-[7-$
hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
methylhex-2'-ene-6'-yl)]methylene-bis(phosphonate),
 $P^1-(2'-O-acetyl-3'-fluoro-3'-deoxyinosin-5'-yl)-P^2-[7-$
25 hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
methylhept-2'-ene-7'-yl)]methylene-bis(phosphonate),
 $P^1-(2'-O-acetyl-3'-fluoro-3'-deoxyinosin-5'-yl)-P^2-[7-$
hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-
methyloct-2'-ene-8'-yl)]methylene-bis(phosphonate),
30 $P^1-[9-(3'-O-acetyl-2'-fluoro-2'-deoxy-\beta-D-$
arabinofuranosyl)hypoxanthin-5'-yl]- $P^2-[7-hydroxy-5-$
methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylbut-2'-ene-
4'-yl)]methylenebis(phosphonate),
 $P^1-[9-(3'-O-acetyl-2'-fluoro-2'-deoxy-\beta-D-$
35 arabinofuranosyl)hypoxanthin-5'-yl]- $P^2-[7-hydroxy-5-$

- methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylpent-2'-ene-5'-yl)]methylenebis(phosphonate),
- P¹-[9-(3'-O-acetyl-2'-fluoro-2'-deoxy-β-D-arabinofuranosyl)hypoxanthin-5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhex-2'-ene-6'-yl)]methylenebis(phosphonate),
- 5 P¹-[9-(3'-O-acetyl-2'-fluoro-2'-deoxy-β-D-arabinofuranosyl)hypoxanthin-5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhept-2'-ene-7'-yl)]methylenebis(phosphonate),
- 10 P¹-[9-(3'-O-acetyl-2'-fluoro-2'-deoxy-β-D-arabinofuranosyl)hypoxanthin-5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methyloct-2'-ene-8'-yl)]methylenebis(phosphonate),
- 15 P¹-[9-(2'-O-acetyl-3'-fluoro-3'-deoxy-β-D-arabinofuranosyl)hypoxanthin-5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylbut-2'-ene-4'-yl)]methylenebis(phosphonate),
- P¹-[9-(2'-O-acetyl-3'-fluoro-3'-deoxy-β-D-arabinofuranosyl)hypoxanthin-5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylpent-2'-ene-5'-yl)]methylenebis(phosphonate),
- 20 P¹-[9-(2'-O-acetyl-3'-fluoro-3'-deoxy-β-D-arabinofuranosyl)hypoxanthin-5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhex-2'-ene-6'-yl)]methylenebis(phosphonate),
- 25 P¹-[9-(2'-O-acetyl-3'-fluoro-3'-deoxy-β-D-arabinofuranosyl)hypoxanthin-5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhept-2'-ene-7'-yl)]methylenebis(phosphonate), and
- 30 P¹-[9-(2'-O-acetyl-3'-fluoro-3'-deoxy-β-D-arabinofuranosyl)hypoxanthin-5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methyloct-2'-ene-8'-yl)]methylenebis(phosphonate).

26. The compound of claim 24, wherein the compound is selected from the group consisting of:

P¹-(adenosin-5'-yl)-P²-(mycophenol-5'-yl)methylene-
5 bis(phosphonate),

P¹-(adenosin-5'-yl)-P²-[7-hydroxy-5-methoxy-4-methyl-
phthalan-1-on-6-yl-(3'-methylbut-2'-ene-4'-
yl)]methylenebis-(phosphonate),

P¹-(adenosin-5'-yl)-P²-[7-hydroxy-5-methoxy-4-methyl-
10 phthalan-1-on-6-yl-(3'-methylpent-2'-ene-5'-
yl)]methylenebis-(phosphonate),

P¹-(adenosin-5'-yl)-P²-[7-hydroxy-5-methoxy-4-methyl-
phthalan-1-on-6-yl-(3'-methylhept-2'-ene-7'-
yl)]methylenebis-(phosphonate),

15 P¹-(adenosin-5'-yl)-P²-[7-hydroxy-5-methoxy-4-methyl-
phthalan-1-on-6-yl-(3'-methyloct-2'-ene-8'-yl)]methylenebis-
(phosphonate),

P¹-(2'-fluoro-2'-deoxyadenosin-5'-yl)-P²-[7-hydroxy-5-
methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylbut-2'-ene-
20 4'-yl)]-methylenebis-(phosphonate),

P¹-(2'-fluoro-2'-deoxyadenosin-5'-yl)-P²-[7-hydroxy-5-
methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylpent-2'-ene-
5'-yl)]-methylenebis(phosphonate),

25 P¹-(2'-fluoro-2'-deoxyadenosin-5'-yl)-P²-[7-hydroxy-5-
methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhex-2'-ene-6'-
yl)]-methylenebis(phosphonate),

P¹-(2'-fluoro-2'-deoxyadenosin-5'-yl)-P²-[7-hydroxy-5-
methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhept-2'-ene-
7'-yl)]-methylenebis(phosphonate),

30 P¹-(2'-fluoro-2'-deoxyadenosin-5'-yl)-P²-[7-hydroxy-5-
methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methyloct-2'-ene-
8'-yl)]-methylenebis(phosphonate),

35 P¹-(3'-fluoro-3'-deoxyadenosin-5'-yl)-P²-[7-hydroxy-5-
methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylbut-2'-ene-
4'-yl)]-methylenebis(phosphonate),

- $$p^1-(3'-\text{fluoro-3'-deoxyadenosin-5'-yl})-p^2-[7\text{-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylpent-2'-ene-5'-yl)}]-\text{methylenebis(phosphonate)},$$
- 5
$$p^1-(3'-\text{fluoro-3'-deoxyadenosin-5'-yl})-p^2-[7\text{-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhex-2'-ene-6'-yl)}]-\text{methylenebis(phosphonate)},$$
- $$p^1-(3'-\text{fluoro-3'-deoxyadenosin-5'-yl})-p^2-[7\text{-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhept-2'-ene-7'-yl)}]-\text{methylenebis(phosphonate)},$$
- 10
$$p^1-(3'-\text{fluoro-3'-deoxyadenosin-5'-yl})-p^2-[7\text{-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methyloct-2'-ene-8'-yl)}]-\text{methylenebis(phosphonate)},$$
- $$p^1-[9-(2'-\text{fluoro-2'-deoxy-}\beta\text{-D-arabinofuranosyl})\text{adenin-5'-yl}]-p^2-[7\text{-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylbut-2'-ene-4'-yl)}]-\text{methylenebis(phosphonate)},$$
- 15
$$p^1-[9-(2'-\text{fluoro-2'-deoxy-}\beta\text{-D-arabinofuranosyl})\text{adenin-5'-yl}]-p^2-[7\text{-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylpent-2'-ene-5'-yl)}]-\text{methylenebis(phosphonate)},$$
- $$p^1-[9-(2'-\text{fluoro-2'-deoxy-}\beta\text{-D-arabinofuranosyl})\text{adenin-5'-yl}]-p^2-[7\text{-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhex-2'-ene-6'-yl)}]-\text{methylenebis(phosphonate)},$$
- 20
$$p^1-[9-(2'-\text{fluoro-2'-deoxy-}\beta\text{-D-arabinofuranosyl})\text{adenin-5'-yl}]-p^2-[7\text{-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhept-2'-ene-7'-yl)}]-\text{methylenebis(phosphonate)},$$
- $$p^1-[9-(2'-\text{fluoro-2'-deoxy-}\beta\text{-D-arabinofuranosyl})\text{adenin-5'-yl}]-p^2-[7\text{-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methyloct-2'-ene-8'-yl)}]-\text{methylenebis(phosphonate)},$$
- 25
$$p^1-[9-(3'-\text{fluoro-3'-deoxy-}\beta\text{-D-arabinofuranosyl})\text{adenin-5'-yl}]-p^2-[7\text{-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylbut-2'-ene-4'-yl)}]-\text{methylenebis(phosphonate)},$$
- 30
$$p^1-[9-(3'-\text{fluoro-3'-deoxy-}\beta\text{-D-arabinofuranosyl})\text{adenin-5'-yl}]-p^2-[7\text{-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylpent-2'-ene-5'-yl)}]-\text{methylenebis(phosphonate)},$$
- $$p^1-[9-(3'-\text{fluoro-3'-deoxy-}\beta\text{-D-arabinofuranosyl})\text{adenin-5'-yl}]-p^2-[7\text{-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhex-2'-ene-6'-yl)}]-\text{methylenebis(phosphonate)},$$

5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-
 (3'-methylhex-2'-ene-6'-yl)]methylenebis(phosphonate),
 P¹-[9-(3'-fluoro-3'-deoxy-β-D-arabinofuranosyl)adenin-
 5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-
 5 (3'-methylhept-2'-ene-7'-yl)]methylenebis(phosphonate),
 P¹-[9-(3'-fluoro-3'-deoxy-β-D-arabinofuranosyl)adenin-
 5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-
 (3'-methyloct-2'-ene-8'-yl)]methylenebis(phosphonate),
 P¹-(guanosin-5'-yl)-P²-[7-hydroxy-5-methoxy-4-methyl-
 10 phthalan-1-on-6-yl-(3'-methylbut-2'-ene-4'-yl)]methylene-
 bis(phosphonate),
 P¹-(guanosin-5'-yl)-P²-[7-hydroxy-5-methoxy-4-methyl-
 phthalan-1-on-6-yl-(3'-methylpent-2'-ene-5'-yl)]methylene-
 bis(phosphonate),
 15 P¹-(guanosin-5'-yl)-P²-[7-hydroxy-5-methoxy-4-methyl-
 phthalan-1-on-6-yl-(3'-methylhex-2'-ene-6'-yl)]methylene-
 bis(phosphonate),
 P¹-(guanosin-5'-yl)-P²-[7-hydroxy-5-methoxy-4-methyl-
 phthalan-1-on-6-yl-(3'-methylhept-2'-ene-7'-
 20 yl)]methylenebis(phosphonate),
 P¹-(guanosin-5'-yl)-P²-[7-hydroxy-5-methoxy-4-methyl-
 phthalan-1-on-6-yl-(3'-methyloct-2-ene-8'-yl)]methylenebis-
 (phosphonate),
 P¹-(2'-fluoro-2'-deoxyguanosin-5'-yl)-P²-[7-hydroxy-5-
 25 methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylbut-2'-ene-
 4'-yl)]-methylenebis(phosphonate),
 P¹-(2'-fluoro-2'-deoxyguanosin-5'-yl)-P²-[7-hydroxy-5-
 methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylpent-2'-ene-
 5'-yl)]methylenebis(phosphonate),
 30 P¹-(2'-fluoro-2'-deoxyguanosin-5'-yl)-P²-[7-hydroxy-5-
 methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhex-2-ene-6'-
 yl)]methylenebis(phosphonate),
 P¹-(2'-fluoro-2'-deoxyguanosin-5'-yl)-P²-[7-hydroxy-5-
 methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhept-2'-ene-
 35 7'-yl)]methylenebis(phosphonate),

- P^1 - (2'-fluoro-2'-deoxyguanosin-5'-yl)- P^2 - [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl- (3'-methyloct-2'-ene-8'-yl)]methylenebis (phosphonate),
 P^1 - (3'-fluoro-3'-deoxyguanosin-5'-yl)- P^2 - [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl- (3'-methylbut-2'-ene-4'-yl)]methylenebis (phosphonate),
 P^1 - (3'-fluoro-3'-deoxyguanosin-5'-yl)- P^2 - [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl- (3'-methylpent-2'-ene-5'-yl)]methylenebis (phosphonate),
 P^1 - (3'-fluoro-3'-deoxyguanosin-5'-yl)- P^2 - [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl- (3'-methylhex-2'-ene-6'-yl)]methylenebis (phosphonate),
 P^1 - (3'-fluoro-3'-deoxyguanosin-5'-yl)- P^2 - [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl- (3'-methylhept-2'-ene-7'-yl)]methylenebis (phosphonate),
 P^1 - (3'-fluoro-3'-deoxyguanosin-5'-yl)- P^2 - [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl- (3'-methyloct-2'-ene-8'-yl)]methylenebis (phosphonate),
 P^1 - [9- (2'-fluoro-2'-deoxy- β -D-arabinofuranosyl) guanin-5'-yl]- P^2 - [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl- (3'-methylbut-2'-ene-4'-yl)]methylenebis (phosphonate),
 P^1 - [9- (2'-fluoro-2'-deoxy- β -D-arabinofuranosyl) guanin-5'-yl]- P^2 - [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl- (3'-methylpent-2'-ene-5'-yl)]methylenebis (phosphonate),
 P^1 - [9- (2'-fluoro-2'-deoxy- β -D-arabinofuranosyl) guanin-5'-yl]- P^2 - [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl- (3'-methylhex-2'-ene-6'-yl)]methylenebis (phosphonate),
 P^1 - [9- (2'-fluoro-2'-deoxy- β -D-arabinofuranosyl) guanin-5'-yl]- P^2 - [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl- (3'-methylhept-2'-ene-7'-yl)]methylenebis (phosphonate),
 P^1 - [9- (2'-fluoro-2'-deoxy- β -D-arabinofuranosyl) guanin-5'-yl]- P^2 - [7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl- (3'-methyloct-2'-ene-8'-yl)]methylenebis (phosphonate),
 P^1 - [9- (3'-fluoro-3'-deoxy- β -D-arabinofuranosyl) guanin-

5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-
 (3'-methylbut-2'-ene-4'-yl)]methylenebis(phosphonate),
 P¹-[9-(3'-fluoro-3'-deoxy-β-D-arabinofuranosyl)guanin-
 5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-
 5 (3'-methylpent-2'-ene-5'-yl)]methylenebis(phosphonate),
 P¹-[9-(3'-fluoro-3'-deoxy-β-D-arabinofuranosyl)guanin-
 5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-
 (3'-methylhex-2'-ene-6'-yl)]methylenebis(phosphonate),
 P¹-[9-(3'-fluoro-3'-deoxy-β-D-arabinofuranosyl)guanin-
 10 5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-
 (3'-methylhept-2'-ene-7'-yl)]methylenebis(phosphonate),
 P¹-[9-(3'-fluoro-3'-deoxy-β-D-arabinofuranosyl)guanin-
 5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-
 (3'-methyloct-2'-ene-8'-yl)]methylenebis(phosphonate),
 15 P¹-(inosin-5'-yl)-P²-[7-hydroxy-5-methoxy-4-methyl-
 phthalan-1-on-6-yl-(3'-methylbut-2'-ene-4'-yl)]methylene-
 bis(phosphonate),
 P¹-(inosin-5'-yl)-P²-[7-hydroxy-5-methoxy-4-methyl-
 phthalan-1-on-6-yl-(3'-methylpent-2'-ene-5'-yl)]methylene-
 20 bis(phosphonate),
 P¹-(inosin-5'-yl)-P²-[7-hydroxy-5-methoxy-4-methyl-
 phthalan-1-on-6-yl-(3'-methylhex-2'-ene-6'-yl)]methylene-
 bis(phosphonate),
 P¹-(inosin-5'-yl)-P²-[7-hydroxy-5-methoxy-4-methyl-
 25 phthalan-1-on-6-yl-(3'-methylhept-2'-ene-7'-yl)]methylene-
 bis(phosphonate),
 P¹-(inosin-5'-yl)-P²-[7-hydroxy-5-methoxy-4-methyl-
 phthalan-1-on-6-yl-(3'-methyloct-2'-ene-8'-yl)]methylenebis-
 (phosphonate),
 30 P¹-(2'-fluoro-2'-deoxyinosin-5'-yl)-P²-[7-hydroxy-5-
 methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylbut-2'-ene-
 4'-yl)]methylenebis(phosphonate),
 P¹-(2'-fluoro-2'-deoxyinosin-5'-yl)-P²-[7-hydroxy-5-
 methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylpent-2'-ene-

- 5'-yl)]methylenebis(phosphonate),
 $P^1-(2'-\text{fluoro-2'-deoxyinosin-5'-yl})-P^2-[7\text{-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhex-2-ene-6'-yl)]\text{methylenebis(phosphonate)},$
- 5 $P^1-(2'-\text{fluoro-2'-deoxyinosin-5'-yl})-P^2-[7\text{-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhept-2'-ene-7'-yl)]\text{methylenebis(phosphonate)},$
 $P^1-(2'-\text{fluoro-2'-deoxyinosin-5'-yl})-P^2-[7\text{-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methyloct-2'-ene-8'-yl)]\text{methylenebis(phosphonate)},$
- 10 $P^1-(3'-\text{fluoro-3'-deoxyinosin-5'-yl})-P^2-[7\text{-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylbut-2'-ene-4'-yl)]\text{methylenebis(phosphonate)},$
 $P^1-(3'-\text{fluoro-3'-deoxyinosin-5'-yl})-P^2-[7\text{-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylpent-2'-ene-5'-yl)]\text{methylenebis(phosphonate)},$
- 15 $P^1-(3'-\text{fluoro-3'-deoxyinosin-5'-yl})-P^2-[7\text{-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhex-2'-ene-6'-yl)]\text{methylenebis(phosphonate)},$
 $P^1-(3'-\text{fluoro-3'-deoxyinosin-5'-yl})-P^2-[7\text{-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhept-2'-ene-7'-yl)]\text{methylenebis(phosphonate)},$
- 20 $P^1-(3'-\text{fluoro-3'-deoxyinosin-5'-yl})-P^2-[7\text{-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methyloct-2'-ene-8'-yl)]\text{methylenebis(phosphonate)},$
- 25 $P^1-[9-(2'-\text{fluoro-2'-deoxy-}\beta\text{-D-arabinofuranosyl})\text{-hypoxanthin-5'-yl}]-P^2-[7\text{-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylbut-2'-ene-4'-yl)]\text{methylenebis(phosphonate)},$
 $P^1-[9-(2'-\text{fluoro-2'-deoxy-}\beta\text{-D-arabinofuranosyl})\text{-hypoxanthin-5'-yl}]-P^2-[7\text{-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylpent-2'-ene-5'-yl)]\text{methylenebis(phosphonate)},$
- 30 $P^1-[9-(2'-\text{fluoro-2'-deoxy-}\beta\text{-D-arabinofuranosyl})\text{-hypoxanthin-5'-yl}]-P^2-[7\text{-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhex-2'-ene-6'-yl)]\text{methylenebis(phosphonate)},$
- 35 $P^1-[9-(2'-\text{fluoro-2'-deoxy-}\beta\text{-D-arabinofuranosyl})\text{-hypoxanthin-5'-yl}]-P^2-[7\text{-hydroxy-5-methoxy-4-methyl-phthalan-1-on-6-yl-(3'-methylhept-2'-ene-7'-yl)]\text{methylenebis(phosphonate)},$

6'-yl)methylenebis(phosphonate),
 P¹-[9-(2'-fluoro-2'-deoxy-β-D-arabinofuranosyl)-
 hypoxanthin-5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-
 phthalan-1-on-6-yl-(3'-methylhept-2'-ene-7'-yl)]methylene-
 5 bis(phosphonate),
 P¹-[9-(2'-fluoro-2'-deoxy-β-D-arabinofuranosyl)-
 hypoxanthin-5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-
 phthalan-1-on-6-yl-(3'-methyloct-2'-ene-8'-yl)]methylene-
 bis(phosphonate),
 10 P¹-[9-(3'-fluoro-3'-deoxy-β-D-arabinofuranosyl)-
 hypoxanthin-5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-
 phthalan-1-on-6-yl-(3'-methylbut-2'-ene-4'-yl)]methylene-
 bis(phosphonate),
 P¹-[9-(3'-fluoro-3'-deoxy-β-D-arabinofuranosyl)-
 15 hypoxanthin-5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-
 phthalan-1-on-6-yl-(3'-methylpent-2'-ene-5'-yl)]methylene-
 bis(phosphonate),
 P¹-[9-(3'-fluoro-3'-deoxy-β-D-arabinofuranosyl)-
 hypoxanthin-5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-
 20 phthalan-1-on-6-yl-(3'-methylhex-2'-ene-6'-yl)]methylene-
 bis(phosphonate),
 P¹-[9-(3'-fluoro-3'-deoxy-β-D-arabinofuranosyl)-
 hypoxanthin-5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-
 phthalan-1-on-6-yl-(3'-methylhept-2'-ene-7'-yl)]methylene-
 25 bis(phosphonate), and
 P¹-[9-(3'-fluoro-3'-deoxy-β-D-arabinofuranosyl)-
 hypoxanthin-5'-yl]-P²-[7-hydroxy-5-methoxy-4-methyl-
 phthalan-1-on-6-yl-(3'-methyloct-2'-ene-8'-yl)]methylene-
 bis(phosphonate).

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